The Builder.

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ILLUSTRATIONS.

Throndhjem Cathedral, Norway, as Restored 810
Swimming Bath, Uppingham School.—Mr. Arthur Young, Architect 812
Residence, Goff's Hill, Crawley, Sussex.—Mr. William Buck, Architect 814
Church of St. Mary, Waterloo, Liverpool.—Messrs. W. G. Habershon & Fawckner, Architects 815
Organ Case for St. Margaret's, Westminster 817
Ground-plan of Hertford Castle 819

CONTENTS.

The Jones Collection at the South Kensington Museum 799
The Modern Sword of Damocles 800
Hampton Court Palace 801
Critical Column 802
American Architecture in its Constructive and Sanitary Aspects: Royal Institute of British Architects 803
The Largest Greek Terra Cotta 805
The Foundations of Art in Architecture 806
The Fire at Hampton Court Palace 807
Throndhjem Cathedral, Norway 808
Swimming Bath, Uppingham School 808
St. Mary's, Waterloo, Liverpool 819
Residence, Goff's Hill, Crawley 819
Organ Case for St. Margaret's, Westminster 819
Hertford Castle 819
Fires at Country Mansions and some Suggestions for their Prevention 820
Building Frontages on the Thames Embankment 823
West London School of Art: Mr. Mundella, M.P., on Art Teaching 823
Horticultural Buildings 825
New Substitute for Gypsum 826
Stevens and St. Paul's 826
Obituary 826
Shortcomings at Netley Hospital 826
The Stone Question 826
The Decoration of St. Paul's 827
Variorum 827
The Regent's Canal and City Railway 827
Miscellanea 827

The Jones Collection at the South Kensington Museum.

THE collection of objects of art which has been left to the South Kensington Museum in trust for the nation, by the late Mr. John Jones, of Piccadilly, would be a remarkable one even if it came from some ancestral home, as the product of the collective faculties of several generations of a family. As the collection of one man who had only towards middle life acquired a fortune and commenced laying it out in this way, it is probably unique. Not only is it remarkable for the extent and variety of the objects collected, and their pecuniary value, but as an example of the judgment shown in the choice of the objects purchased. There is nothing which does not represent the best class of work of its school, whatever our opinion as to the school generally may be. We make this qualifying remark, because we feel that we must distinguish between what is good of its class, what is well designed according to its style and admirable in its workmanship, and what is artistically of the best type *per se*. The compilers of the handbook to the collection speak very strongly, and, in one sense, not too strongly, of the advantage to art-workmen of having this splendid and varied collection to study from, and being enabled to see together and compare so many examples of the most admirable workmanship that could well be met with. It is natural also that the South Kensington authorities should be exceedingly gratified at being able to present to their visitors and students so complete a collection of the artistic furniture of a period which was before imperfectly represented in the Museum, and which, owing to the exceptional costliness of most of the articles, they could not have hoped for a very long period, if ever, to have been enabled to acquire by public funds. But there is another side to the matter. Splendid workmanship, which spares no trouble and no expense in attaining perfect execution, is a quality to be enthusiastic over for its own sake, no doubt; and it is of peculiar interest to have a collection which illustrates so fully one special school of work, and one which so completely dominated the taste of Europe during a very important and remarkable period of social history. But it would be wrong for any who are aiming at guiding public taste to any degree to overlook the fact that this beautiful workmanship represents also a period of very corrupt taste, and that the collection includes a great deal which, however costly and superb in workmanship, represents a very vitiated artistic style, and is by no means to be held up as an example of what ornament and artistic design ought to be. We could have wished that there had been some recognition of this in the otherwise well-written hand-book to the collection published by the South Kensington authorities. There need have been no ungracious undervaluing of the gift left to the nation. Its interest, in more ways than one, is sufficient to justify the warmest expressions of recognition of the knowledge and care which collected it, and the public spirit which placed it where it is. But it would be by no means desirable that workmen and designers should be encouraged to look upon such a collection as a fountain-head of pure taste, or to imitate all the forms and suggestions to be found there. The work of the Louis Quinze and Louis Seize period or periods represents some of the richest, most gorgeous, and most painstaking, as well as successful work which the world has ever seen. But it also represents in many instances a most frivolous and false taste, the true indication of the likings of a society in which all was show and glitter, luxury and selfishness, and which prized richness and ostentation above the pure taste in art of which it, in fact, knew little or nothing. Of much of the work of the period it may be said, that if it represents good taste in ornament and design, nearly all that has been said by the best and most thoughtful critics on this subject must be wrong, and all our ideas as to true and false taste would have to be reviewed or discarded.

It may be useful to consider for a moment why it is that ornamental work of this school is, for the most part, so false and misleading in style. The reason is mainly to be found in the fact that the ornamentists of the period in question did not turn to nature for guidance, or even to such natural truths of form and proportion as are set forth in geometry; they turned to artificial objects and to the reminiscence of another and extinct style. Now, ornament is, in its best forms, the kind of design which results from the application of thought to the treatment of natural forms. It is not imitation of nature; it is nature taken as the basis upon which to build a new creation, a design of human invention. But there is scarcely an example to be found in the French work of the eighteenth century which comes under this definition of ornament. The ornamental detail of the period may be classed under three heads; that which is an imitation of Roman ornament, more or less modified by the taste of Renaissance artists; that which is an imitation of artificial objects, such as wreaths, ribbons, festoons, and so on; and that which is merely play of line in the way of scrolls and other such forms. Ornament of the latter class may be very good and very interesting, so long as it is sufficiently abstract in form to appear merely as the representation of proportion in space and contour, and is treated in such a manner as to emphasise the construction and expression of the furniture or other object to which it may be applied. But the ornament of this class in French eighteenth-century work is not abstract. It looks like very corrupted forms of detail of Roman architecture and Roman design, put together without any intellectual connexion with each other, and without any clear flow of line, or appearance of what may be called constructive truthfulness; it seems to be put there because the artist did not know what else to put. This defect runs constantly through even good work of *le siècle*; ornament is added to a thing for no reason, for no love that the artist could have had for doing it (for it is impossible to suppose he could have had), but simply because the thing was to be handsome, and that was then the fashionable kind of handsomeness. The details derived from Classic work, sometimes well treated and sometimes ill, have that second-hand character and second-hand interest which always belong to imitation art; and as to the imitation of artificial gewgaws and trinkets as ornament, that is the very lowest system of ornament, being the one in which the least amount of thought is shown, and which takes as its starting-point some of the most commonplace of artificial objects, instead of the suggestive and typical forms of Nature. When we find a clock-case with an imitation napkin or towel in gold or ormulu hung over it, we feel that we have got to about the greatest depth of vulgarity to which taste in ornament can go: the thing has neither beauty nor meaning of any sort; but something must be put, and this will do as well as anything else to fill up the space, and to exhibit the costliness of the material and the cleverness of the manipulator. There is little or no thought in this school of work for the most part; its good qualities are a certain elegance in the best productions, and an exquisite workmanship, in which no pains and no time seem to have been spared towards doing the best that lay in the artist's power. The richness of the materials employed adds not a little to the effect; but that is not the best thing that can be said for any school of design. The highest decorative art is that which confers a new value on the material, whether costly in itself or not. The compilers of the handbook are very anxious to show that the prices at which some of the articles in the Jones collection are estimated represent their real marketable value for the time in which they were made, or something not far from that; and when we hear of three years being

spent over a small writing-table we know that its money value for such thorough and honest work, must be very high; and that this must, of course, rise as the class of objects in question becomes more scarce, and they are more sought after by collectors. But it is necessary to say, and the South Kensington authorities ought to have said it, that collectors' value is one thing, and artistic value is another. We are told that the money value of a certain small snuff-box (No. 922 in the collection), with miniature subjects painted by Blaremberghe, is 1,500*l*. No doubt collectors would be found willing to give that price for an *objet de luxe* of this kind, so beautifully finished and so unique in its way; and we are far from depreciating the collectors' point of view. The taste for collecting serves to keep up the price of works of art, and is to be upheld on that account, at any rate. But we cannot help feeling that any man who gave that sum for the box in question on grounds of its artistic value alone would make a very foolish use of his money. The same sum would secure him things which, in the artistic sense, would be worth far more, and give far higher pleasure to any lover of art for its own sake.

It must, however, be said that the Jones Collection includes a good many things which represent the best qualities of French eighteenth-century art, with much less of its most pronounced faults than we are accustomed to see. This is the case in particular with a great many of the articles of furniture, writing-tables, and objects of that kind. These possess in a great degree the qualities both of elegance of design and of suitability to their purpose. It is, indeed, a rather weak stamp of work, and the predominance of curved lines in every direction, however remarkable as exhibiting finish and exactitude of workmanship, could not fail to produce this impression in work of which wood is the foundation. It is emphatically a boudoir style of furniture, looking as if only meant for occasional use by delicate feminine hands, and otherwise rather for show than for use. There hangs about it a kind of aroma of a highly-polished and artificialised society, which adds to it another and quite different interest from that which belongs to its artistic merit. Many of these delicate and feminine-looking bits of furniture have really been in the possession of princesses and other ladies of the period to which they belong. Several were the property of Marie Antoinette. We seem brought nearer to the French court of that era in looking at this collection of the kind of articles with which its sumptuous *salons* and boudoirs were furnished: we have a closer familiarity with the life and the tastes of the people who lived among these things.

There are things in the collection, however, which rise higher than this, such as the large Boule cabinet which stands in the inner gallery, and which is an astonishing piece of work in regard to execution, and certainly finer and purer in taste than a great deal of Louis Quatorze work. It was, we are told, bought by Mr. Jones from a house in Carlton-terrace, not long since, and is believed to have been made for Louis XIV. The decoration being mostly inlay, perfectly flat, the piece does not exhibit those swelling protuberances of outline which are so wearisomely repeated in much work of the same period. The execution is superb; nothing could surpass it, and its elaboration is astonishing; but, though the ornament is pleasing and far more tasteful than in many other specimens, it represents, for the most part, very commonplace forms, and there are few people in the present day with any power of designing at all who could not at least draw something better and more characteristic and interesting than this. Here and there we meet with things in which there is a curious and very unusual infusion of Oriental taste into part of the detail, greatly to the advantage of artistic effect and expression. The two small oval tables which stand near the entrance-door of the gallery, and which are not so much curved and twisted as some of their companions, are very charming specimens of elegant design and workmanship.

The collection is unquestionably a most remarkable one, and a great gain to the Museum; we have certainly no wish to at all depreciate the value of such a sumptuous legacy to the nation, and rather hope that it may set an example to be followed by others who have collections and no relatives with a more direct claim on them. But we wish to say a word of warning against the danger of taking things as models of artistic taste, which are rather models of patient and refined workmanship, and appendages of a luxurious and not (in the best sense) very highly cultivated society. The fact that kings, princes, and nobles could be content to spend such sums on designs of this class, containing so much that is false and frivolous in taste, really does lend some colour to the idea which has been promulgated of late, that wealth and luxury are inimical to the production or encouragement of a high class of art; though, of course, the history of society furnishes other evidence to the contrary. With this reservation of their admiration, let artisans study this collection diligently and observantly, and they will learn much; and the interest which it has for all educated people as a representation of a school is, of course, very great.

We may observe that, as usual at South Kensington, the things are arranged with no reference whatever to the order of the numbers on them, or to the way in which they are referred to in the handbook; so that the finding anything which is specially mentioned in the handbook, unless it be a large and prominent object, is a mere matter of chance. A complete catalogue is to come, and this, like the other catalogues, will be practically useless for any assistance in finding the objects. The numbers appear to be affixed solely to identify the different articles in the books of the museum, and have not the slightest reference to the placing of the objects. The consequence is that the finding anything one wants to find is next to impossible. We have referred to this absurd and needless source of difficulty thrown in the way of students, over and over again. Some one who is invested with power ought to come down sharply on the authorities and compel them to adopt a more rational system of nomenclature and grouping, and to have some method of indicating in their catalogues how to find the objects. There can be no difficulty in doing this, and no excuse for continuing such an absurd and inconvenient system, or want of system.

THE MODERN SWORD OF DAMOCLES.

Under this not inappropriate title, our contemporary the *Lancet* has very effectively called the attention of the public to a daily-increasing source of danger, against which in our columns on the 19th of February, 1881, as well as on other occasions, we have felt it a duty loudly to protest. On glancing at the titles of other articles about the date in question, it becomes evident that it was the interruption of telegraphic communication caused by storm that was the immediate occasion of the warning to which we refer. At the present moment it is almost enough to glance sky-wards in any street in London to become convinced of the rapid growth of a very serious source of danger. "It would be difficult," remarks our contemporary, "for a malevolent genius to devise any more dangerous apparatus than a long stout wire stretched from house to house across a public thoroughfare. In some unexpected moment, under extraordinary pressure, perhaps a heavy weight of snow, it is not merely possible, but likely, that it will fall to the ground, and in falling must almost inevitably cut in two all it strikes." In support of this view, we desire to recall the case in which an engine-driver on the Great Western Railway was absolutely decapitated by a telegraph-wire which had become detached from its support, and was hanging over the line at the level of his neck. It is true that the speed of the train,—some thirty or thirty-five miles an hour,—was here a factor in the case; and that it was the man who struck the wire, not the wire that struck the man. But let any reader who has a turn for figures ascertain the height above the ground at which the strands of this cobweb of death are usually stretched, and then calculate the velocity that will be attained by a body falling from that height. There will, of course, be a difference in the speed attained by a freely falling wire, and by one that is attached at one end. But making all allowance, we think that a blow from a trooper's sword could not be much more formidable than that sustained by any one who was struck by such a falling wire.

And then as to probability: it is, it seems to us, only a question of time. There are no means available for testing the safety of the wires. Leave them alone long enough, and they must snap from the ordinary effect of atmospheric corrosion; much accelerated, as it is in London and other great towns, by the sulphureous and nitrous fumes with which the air is apt to be loaded. It is also sure that such fractures will occur, when they take place, without warning; and also that it is precisely on the occasions when telegraphic communication is of most value, owing to the impeding of other modes of communication by snow or tempest, that its interruption by the failure of the wires is most likely to occur.

It should also be borne in mind that the case is one in which public vigilance is most likely to be lulled to sleep by a comparatively long period of immunity. Every wire has a certain average life, which may be ordinarily counted upon. We are not aware of any data that would allow us to calculate what that life should be. But be it ten, twenty, or any number of years, barring violence of any kind, it is clear that a great number of wires will attain a dangerous longevity about the same time. Then, according to the laws of probabilities, will occur all at once a great number of fractures, which can hardly be unattended by serious and even fatal calamities. What steps have been taken by any one, at the present time, to preserve the public from this certain, if deferred, danger?

It seems to us that, not merely with reference to this visible overhead danger, but also to some others that are silently, but rapidly, accumulating in many urban neighbourhoods, the rule of public safety is a simple one. No structure of any kind that *must* fail if left alone for a certain, though, as yet, an undetermined, time; of which the failure will be without due warning; and of which failure the results must be serious, and may be fatal; ought to be permitted in urban localities. We have forbidden, by special enactment, the storage or the carriage in and through towns of explosives in dangerous quantities. The rule is a sound one. It is demanded by public safety, and, sooner or later, unless other precautions be taken, it will be found that it ought to have been applied to our stretched wires.

For public safety, for the security of uninterrupted communication, and, ultimately, probably for reasons of economy, it is clear, in our opinion, that a subterranean channel must be adopted for the wires of the telegraph. As far as we are aware, it is not as to telegraphic wires, in the old sense of the word, that difficulty will arise, so much as to the communicating of that later born child of Hermes Trismegistus, the telephone. So delicate are the vibrations that convey a human whisper for dozens of miles, that the inductive effect of one wire on another is enough to disturb them, and thus, it has been urged, telephone wires must be aërial, as by no other mode of fixing can they be kept far enough apart not to interfere with one another by induction.

This, of course, is a point that demands attention. For our own part, we have not that feeble faith in science that should lead us to conclude that she can only, or best, be served by barbarous methods. And anything more barbarous than hitching wires to posts and pillars, to chimneys and steeples, it is not easy to suggest. Within the last few days, however, mention has been made in the public journals of a new invention (as to the nature of which silence is maintained) coming from Germany which gets over this difficulty as to induction. We are not without a suspicion that if the wire of communication be surrounded by a spiral wire through which a current is also maintained, the one induction may be found to balance the other (as in the case of the iron case for the magnetic compass in an iron ship), and that thus the whisper of the telephone may pass unimpeded through subterranean wires laid in well-fitted pipes. As to this, no doubt, we shall soon hear particulars, if the announcement be correct. But whether it be so or not, we are anxious to renew our former warnings, and to call the attention of those responsible for the safety of the public to the hourly-increasing danger of allowing all sorts of people to hang, at their own good pleasure, over the pathways of our towns and cities, a cobweb of wires along any strand of which, like an enormous spider, death may dart in a moment and make sure of his innocent victim.

The subject is one as to which, in more than one sense of the term, delays are dangerous. The call for attention is rendered all the more urgent by the competition now existing between the Post Office, as the proprietor of the tele-

graphs, and the telephone companies. Any one who has become accustomed to the use of this last and most wonderful of the methods of artificial communication, will be aware of what a vast future lies before it. That it will become a most important,—we might even say the most important,—medium of messages, whether of a business nature or of a domestic character, there can, we apprehend, be but little doubt. What may be further its public services, so to speak, as in the transmission of the music of an opera, the solemn organ-flow of a religious service, the impassioned periods of a great preacher, or the new development of that Parliamentary obstruction which has been so extraordinarily fostered by the new forty-member rule,—it may seem almost fabulous to attempt to calculate. There seems no reason why the golden notes of a *prima donna* should fall only on the ears of her visible audience. Without, so far as we can tell, at all deadening the acoustic effect within theatre or church, the circle of the audience may be extended to all who are in telephonic communication with the building. Unless something unforeseen occurs, the arrangements of our towns and cities, the structure of our houses, the very habits of our daily life, are likely to be transformed by this subtle energy.

To this end the companies are silently but rapidly working. And each day that they are so allowed to work, not only stretches tons of additional wires over our heads, but goes to create at least the presumption of a vested right in the use of our house-tops by the telephone companies. Let us suppose matters to go on, just as they are now doing, till the time when the earliest wires attain their natural period of durability, and that then, within a few weeks, we have a dozen cases of slaughter in the streets by the natural agency of the decaying wire. What will be the public excitement? What the demand for the immediate removal of the source of danger? What the cost of the hurried change? What the inconvenience? What the demands for compensation, to be provided by a legislature, and paid by a public, that took no heed of the growth of the mischievous and threatening mode of putting house in communication with house, until it was too late? The confusion will be something altogether without precedent. It is thus not only in behalf of the one client for whom the scientific journalist holds a general retainer (viz., the public), but also on behalf of the telephone companies themselves, that we desire to join in the remonstrances now made, and to plead for the public safety.

HAMPTON COURT PALACE.

"Close by those meads for ever crown'd with flowers,
Where Thames with pride surveys his rising towers,
There stands a structure of majestic frame,
Which from the neighbouring Hampton takes its name.
Here Britain's statesmen oft the fall foredoom
Of foreign tyrants and of nymphs at home;
Here thou, great Anna! whom three realms obey,
Dost sometimes counsel take—and sometimes tea."
—*Rape of the Lock*, canto iii.

THE manor of Hampton is thus described in the Book of Domesday:—Walter Fitzother holds the manor of Hamntone, in the hundred of Spelthorne, which is taxed at 35 hides . . . . . in the whole it is valued at 39*l.* per annum, when it came to the present owner at 20*l.*, in King Edward's [the Confessor's] time at 40*l.*; it was then held by Earl Algar. After the Conquest we find it in the possession of Sir Walter de Valery, who gave the advowson to the Priory of Takeley in Essex, a cell to St. Valery in Picardy, whence the Norman sailed for his descent upon England. The manor then passed to Sir Robert Gray, whose widow, Joan, devised it to the Knights Hospitallers in the year 1211, whilst there would seem to have been a house here for some sisters of that order. About 300 years later Wolsey, struck with its pleasant and convenient situation, obtained a lease of the manor and manor-house. He then set about building the magnificent mansion which so excited his royal master's cupidity that, making a virtue of necessity, he gave it to the king, who celebrated his entry into possession with a splendid entertainment in honour of the embassy from France in 1527. A full account of the festivities on that occasion will be found in the MS. of Cavendish's life of the prelate (Harl. MSS. No. 428). Twelve years afterwards an Act passed for enclosing a royal chase from out of several of the adjoining parishes. On the king's death some of the more odious boundaries were removed, in response to a petition of the neighbours, and the chase gradually took the form, so familiar to Londoners, of Bushey and the Home Parks. The office of chief steward or feodary of the manor, together with that of lieutenant and keeper of the chase, has always been conferred upon persons of high rank, as, for example, William, Marquess of Northampton; George, Duke of Buckingham; James, Duke of Hamilton; General Monk, Duke of Albemarle; Barbara, Duchess of Cleveland; the Earls of Halifax, the Countess of Guildford, and the Duke of Clarence.

Completing his quondam favourite's design, King Henry VIII. converted the palace into one of his frequent residences,—a predilection that was shared by many of his successors. Here were born, on the 12th of October, 1537, his son Edward VI., whose mother died within two days of his birth; and in 1689 Queen Anne's son, William, Duke of Gloucester; in the chapel Katharine Parr became Queen Consort. Queen Mary and her husband kept Christmas at Hampton Court in great state in the year 1558, as did her sister on two subsequent occasions. Here met the Council to condemn Mary Queen of Scots; and with her son as moderator the conference between the Presbyterians and bishops of the Established Church, which resulted in our amended Liturgy and a revised translation of the Scriptures. In 1647 the Commonwealth men brought a prisoner to the palace that monarch who had there spent some of his less anxious days. Not disdaining to make it a home, Cromwell here caught the ague which ended his life: here too his daughter Elizabeth married Thomas, Lord Falconberg, and Mrs. Claypole died, the only one of her race whose grave remains undisturbed at Westminster.

Consisting of five courts with the leading features of a chapel, banqueting-hall, and a fine Tudor gateway, the original building, in its extent the largest of our royal palaces, underwent considerable change at the hands of Sir Christopher Wren. For the inmost three courts he substituted the present Fountain Court with the fine range of State apartments overlooking the garden and the three beautiful avenues of King William III. beyond. In the second quadrangle, (known as the Clock Court, from the curious astronomical clock over the gateway) he placed an Ionic colonnade, which, harmonising but ill with the hall opposite, leads to the grand staircase and private apartments. The Fountain Court, measuring 110 ft. from east to west by 117 ft. from north to south, has a very pleasing effect; on a summer's day the view through one of the arches is charming. The Hall was manifestly not finished before 1536 or the following year: it is not mentioned in the manuscript cited above, and is ornamented with the initials of the king and Jane Seymour tied with a lover's knot, a device which is repeated in the west drawing-room or Board of Green Cloth, a large and contemporary apartment at its eastern end, as well as on either side of the chapel doorway. The Great Hall measures 106 ft. in length, 60 ft. in height, and 40 ft. in width; its modern stained-glass windows were intended to show, *more heraldico*, the descent of King Henry VIII. and each of his six wives from King Edward III. The Flemish tapestry on the walls, its designs attributed to Van Orley, tell Abraham's history. The chimney-piece and Wolsey's portrait in the adjoining apartment are comparatively modern. The Clock Court gateway is adorned with two of the terra-cotta busts removed thither from "Holbein's Gate," which formerly stood across the roadway at Whitehall.* By one of time's revenges the play of "Henry VIII.," with the downfall of Cardinal Wolsey, was performed in the Hall, which king George I. had fitted up in 1718 for stage plays. His successor was the last sovereign who lived here. This may be due to the circumstance involved in the following anecdote. It is related that the Duke of Sussex, passing through Queen Anne's drawing-room, said,—"I wonder in which of these rooms it was that George II. struck my father": the blow was so keenly remembered that King George III. never cared to live at Hampton Court. In his reign the private rooms were divided into suites of chambers, whose occupancy is in the gift of the Queen. Faraday resided here from 1858 until his death in 1867. In the person of Tobias Rustat, housekeeper at Hampton Court Palace and yeoman of the robes to King Charles II., a singular link exists between Hampton Court and the existing representatives of two other royal palaces. He gave to the nation the two best out-door statues of which London can boast,—those of Charles II. at Chelsea Hospital and James II. at Whitehall, both the work of Grinling Gibbons. Rustat deserves commemoration for his munificent endowments to our universities and other public institutions; a rival of Colston at Bristol, he gave away as much as 100,000*l.* during his life-time to educational and eleemosynary purposes.

The state apartments on the first floor around the Fountain Court ordinarily shown to visitors, include the guard and presence chambers, King's drawing-room, King William's and Queen Mary's bed-rooms, the Queen's drawing-room and audience-chambers, the dining-room, long gallery, with others. They are approached by the King's and the Queen's staircases, whose walls are an apt illustration of Pope's couplet,—

"On painted ceilings you devoutly stare,
Where sprawl the saints of Verrio or Laguerre,"

being decorated with the work of those two artists. It was in a room above these apartments that the fire broke out lately which threatened to extend to the rooms beneath and destroy the pictures they contain. On a careful examination a few years ago numerous errors in the titles of these pictures were discovered. The Raffaelle cartoons were not,—contrary to common belief,—in jeopardy, having been sent to South Kensington; but there remain the nine designs of Mantegna, painted upon linen, representing the triumphs of Cæsar. Nys bought these at Mantua in 1628. Amongst the more valuable paintings deposited in the galleries may be mentioned some genuine Holbeins,—Henry VIII. and his family; Henry Howard, Earl of Surrey; and Lady Vaux. There are some portraits by Titian, two by Vandyck,—King Charles I. on horseback, and Margaret Lemon,—a Velasquez,—Philip IV. with his queen; and himself with his own family, by Pordenone. By Zucchero there are Queen Elizabeth's porter (a fine work), and Mary, Queen of Scots. The marine subjects are worthy of mention, if only for the circumstance that one or two of them present curious evidences of the mode of handling our earliest artillery. One shows an engagement at which Mrs. Spragge, whose monument may be seen at Chelsea Church, fought beside her future husband for the space of six hours. In the Queen's Gallery are the seven tapestries designed by Le Brun, showing the career of the hero of Macedon. They were purchased in Flanders by General Cadogan, *temp.* George I. There are Venuses by Titian and Rubens, Madame de Pompadour by Greuze, Mabuse's Adam and Eve, which once occupied a rather conspicuous position in St. James's Palace; the meeting of Henry VIII. and Francis I. on the "Field of the Cloth of Gold" (from which picture our sovereign's head was cut to prevent its purchase), with examples of Rembrandt, Gainsborough, and West. Some old pictures are in the "haunted gallery,"—through which Queen Katharine Howard, escaping from her chamber, ran towards the chapel where the king was at prayers. But the guards repulsed her, and though her screams resounded through the building the king knelt unmoved. Her ghost may be seen hovering between the entrance to the royal pew and a side-door on the Queen's Great Staircase! In the first presence-chamber are the celebrated Hampton Court beauties, due to the brush of Kneller. The corresponding and equally celebrated series painted by Lely, who,—

"On the animated canvas stole
The sleepy eye that spoke the melting soul,"

and of which Walpole says:—"the beauties at Windsor are the Court of Paphos, and ought to be engraved for the memoirs of its charming biographer, Count Hamilton," * were removed hither from the Castle, where their presence was deemed to be little in accord with the manners of a later, and, let us hope, a more moral age.†

* When Holbein's, or the Cock-pit Gate, was taken down in 1750, the Duke of Cumberland, then Ranger of Windsor Forest, intended to rebuild it with embellishments in the Long Walk. His project failing, portions of the gate were worked up in various of the park lodges. Of its eight medallions of baked clay, glazed like Delft ware, three are preserved at Hatfield, near Witham, in Essex; they represent Henry VII., Henry VIII. when sixteen *ætat*, and Fisher, Bishop of Rochester, and were retouched by Flaxman when a youth. Two others are, as mentioned, at Hampton Court.

* "Anecdotes of Painting," vol. iii., p. 27.

† In vol. xl. of the *Builder*, p. 261 (August 27, 1881), will be found some curious information as to the cost of the erection of the Great Hall; and in the same volume, p. 445 (October 8, 1881), Hampton Court is compared with Versailles.

CRITICAL COLUMN.

INTRODUCTION.

The evident revival of modern Classic architecture throughout the land is a phenomenon of most serious import. Silently and steadily the decried style is being reinstated, and the absence of organised propaganda, of powerful patronage, is of the most hopeful significance. The taste for Classic art is, in short, not being forcibly "revived"; it is itself "reviving" naturally, from grounds and reasons which have accumulated in the wake of time.

The style of the "Revived Gothic" which is just closing its remarkable career was eminently one of "restoration." It was the interest attaching to the decaying monuments of this art and the desire to see them preserved which gave the impetus to Gothic practice. Architects, draughtsmen, and mechanics soon become proficient, and if it was desirable to preserve "old monuments" of a particular style, why should not "new monuments" of this self-same style be erected? The reasoning was not illogical, but certainly inartistic. The same fault was committed which attaches to any and every "forced revival." Admirably grand and perfect as is the Gothic style in itself, and as a product of its own times, in its modern application it has failed to secure our sympathy to any large or lasting extent. For although it will lend itself readily to all modern requirements, although it is capable of much physical transformation, its *spirit* is felt to be out of time with our natures and the general temper of modern times.

Thus Classic architecture is reviving naturally. We feel it to be more "modern," more congenial; it offers at the same time many other advantages which we see and appreciate now that we have come to love it again as a style. It may seem strange to hear Classic architecture called more modern than the Gothic, and yet in spirit, if not in time, it is so. Classic art seems possessed of the spirit of eternal youth; fresh, vigorous, facile, adaptable, it is the only architecture founded upon purely æsthetic grounds, uninfluenced by dominating ideas of religion, state, morals, or physical agents. Such arts as the Egyptian, the Arabian, and the Gothic are deeply tinged and dominated by some emotional or physical influence, outside of the sphere of pure æsthetic perception; the idea dead, the style is dead, and nothing can revive it to intelligent life. We might erect ancient cities, or dress ourselves in ancient garb, and assume the corresponding manners, but this would not revive the concert of ideas and aspirations which belonged to either of the above periods of art, and gave them their character and value; we would but be "moderners," playing a poor comedy. It is different with Classic art, for, founded in its typical elements upon nature, and appealing to man's pure perceptive faculties, it is an art which rests upon a basis which never varies; it is always understood; it is living, growing, advancing with man. Hence, none of the Classic revivals have ever been sterile revivals; they have always accomplished something new and fresh, and each appears like the re-issue of imperishable principles from the mould of advancing time.

The modern Classic revival upon which we are just entering is, it is greatly to be regretted, being pushed with a hot haste and want of preparation which will for some time jeopardise its prospects and repute. Architecture is so much of a "business," and the dictates of fashion are so inexorable, that architects and draughtsmen, builders and mechanics, are, without notice, called upon to work in a style with which many have but a most rudimentary acquaintance. And as a style of architecture is not learned (to be practised with intelligence) in six weeks, nor in six months, nor in six years, the inevitable result is that the "style" is blindfoldly copied out of books and from existing old or contemporary works; features and details are "adopted" and joined together indiscriminately; grace, proportion, and tasteful handling of mouldings and decorative enrichments are but very rarely to be witnessed. It is in the detail, that test-point of Classic taste, where ignorance is especially displayed; the understanding for traditional types is lost, the eye and hand are unaccustomed to the nice discrimination of Classic forms and proportions. Witness, for instance, the chaste superiority of the older Classic monuments over our vulgar sprawling productions; the seriousness, the science, the deep art-intelligence of the former are painfully absent in the others. Students could learn volumes from the vestibule of Somerset House and the buildings of the elder Cockerell in the City, and even Burton's entrance to the Hyde Park is well worth a careful inspection. In composition, pure and as arising out of the plan, fewer faults are committed. The laws of composition apply with little variations equally in all styles of architecture, and the Classic lends itself with special facility to the free and liberal development and expression of the plan in the compositional features. However, even in these matters much bad work is done, bad especially in the way how it is done and the æsthetic means employed, which again leads to the subject of detail in the largest sense of the word.

From this general survey, the occasion may not appear inopportune to open this column for the purpose of a more vigorous and consistent criticism of contemporary work than at present obtains. In so doing, opportunities will present themselves, according to each specific subject, to dwell at length upon the many and varied matters which make up the body and soul of Classic art. It is believed that such a plan of critical comment presents many advantages in bringing home to the student more forcibly anything which can with profit be pointed out. Many lack the inclination and also the capacity to follow abstract expositions of the principles of design; it is dry and uninteresting reading to them. But were these matters developed on the basis of criticising actual London buildings, which the student would be very likely to go and see, these lessons would be conveyed in a manner more interesting and more direct. Architecture is, indeed, largely a contemplative art; it is nowhere learned so well as from a loving observation of its great monuments, provided we have in our souls the chords to be struck and the sentiments to be evoked. It would not be difficult to show that some of the greatest architects of all times, certainly all the really original and striking men, were not book-scholars. They studied, certainly, many deeply, all that can and must be learned from books, but they did not try to find in books what they can never contain,—living art. For real genius is too powerful a force to be long satisfied with the descriptions and definitions of beauty as distilled through the long-channelled funnel of reflective philosophy. Art and beauty, natural or created, are not reflective in character. They are contemplative, impressing; they appeal to emotions, temper, feelings, rather than to reason. It is the "picture" which fascinates our soul, and demands not what it is for nor what it is made of. Hence the way to really learn art is to "see and be instructed," to see with an open heart the beauty of nature and of man's creations, and to deduce from that your own philosophy. This is and must be the course of every architect's education, and those of superior gifts will find the path for themselves; but there are others, and many who enter our profession, with whom the thought and qualification for art are not the leading motives. To such, "art" does not come naturally, and they trust to learning what should be a matter of natural gift. It is those who, if not possessed of genius, may yet possess ability to do good work, who require guidance in their studies. They require their interest and sympathy to be enlisted, to receive hints and directions to enable them to feel their way in the right path, to form their taste on sound lines, and to exhibit it at last in good work according to their own individuality.

Some parts of the creed which is to be preached, and upon which the criticisms will be founded, have already appeared in the foregoing remarks. In all its details and bearings it can only develope itself in the substance of the specific articles, for it is well nigh impossible, as every writer knows, to state views on art in an exhaustive manner in the shape of a programme or abstract dissertation. The writer, however, thinks it well and also possible to declare himself somewhat more on the general tendency of his thinking. In the first place, he believes that there is too much licence, irrational toleration and want of harmony, in regard to architectural ideas and practice generally; a want of settled, positivist views in regard to the direction in which architectural work should move. This shows itself especially in the widely divergent views on architectural style. We have the Classic, the Gothic, the Renaissance, the Romanesque, the Japanese, the Constructional, the Eclectic, the Queen Anne, or specially-patented Æsthetic, all in vogue at one time, and respective adherents combat one another with vigour, sometimes with animosity. There are, on the other hand, those who have no definite sympathies of any kind, and who will, with the greatest alacrity, follow any and every style as fashion or business interests may dictate. This state of things shows, to the writer's mind, that the whole question of architectural style is deplorably misunderstood. The fight is about the shadow, not the substance, the shell and not the kernel, although it is that kernel which, like the soul to the face of man, gives life and intelligence to a style of art. A style should be regarded as the outcome of a variety of elements, some traditional, some original to the particular time in question, combined and moulded according to the spirit and temper, moral, religious, and political, of a time or race, and additionally influenced by climatic, material, and technical factors. Accordingly, there are elements entering the substance of a "style" which are not connected in any way with the attainment of physical or æsthetic beauty, nor with wise and economic construction, nor with practical convenience, but elements of sentiment and ideas, powerful forces of religious and moral tendencies, of political aspirations, of greed and conquest, of remarkable individualities like Alexander, Pericles, Catherine of Medici, Louis XIV., Napoleon the Great. Hence, a "style" is really more a matter of "interest" than one of abstract "beauty"; the attainment of æsthetic beauty may predominate, but need not; any one or any distinctive combination of the enumerated "possible" elements of a style may be the "sleeping," the life and character-giving force.

The æsthetic element certainly runs through all styles, but we find it strong and clear in the one, partly subdued and secondary in the other; in one it is the soul and all the melody; in the other but like a faint accord to accompany the dominating force. We see, therefore, that certain forces of architecture are essential ones, always present, more or less, in every style, while others are incidental ones, and, therefore, those which must account for the differences which we know as the distinguishing features of styles. These latter, though, are beyond our conscious control; no people and no time have ever consciously controlled the character-giving elements of their style. We cannot judge, or certainly not apply and direct, these forces to our own work, simply because we do not clearly know them ourselves; we lack control and survey over them because we stand within them. No people have, therefore, ever known, nor ever will know, "what style" they are working towards. For the attainment of the style, clear and well defined, is the very last result of years and centuries of half-conscious endeavour, of instinctive aspiration.

What we can and must do is to study and master thoroughly the "stationary" elements of style, which are nothing else but the principles of design as they run like a silver thread through the entire field of art. These principles are unchangeable, they rest upon man's intelligence and observing faculties; they exercised themselves first and attained high perfection in the practice of the many technical pursuits, and from which they were engrafted upon architecture as well-understood types of æsthetic expression. Joined to these there are those practical points of plan, construction, &c., which enter largely always, though in varying degree and manner, in the compositions of architectural art. If we could well study and master these matters,—if we could with intelligence gauge their proper positions and power in the various part styles, and arrive at a more correct understanding of the same,—we might push on our own work with confidence that we too were working towards a style which, judging from the general cast of modern man, we might reasonably hope will be no mean or insignificant one. This is the point of view which we must all reach, all deeply possess, before we can hope to work with promise toward a style of our own. We must become less of antiquaries and more of artists; devote our time less to the copying of the sterile forms of dead styles and more to the study of the continuous elements of design; we must, above all, become fully possessed of the fact that a style cannot be forced on, nor consciously developed. We can but carefully prepare and advance those elements which we

can control; the rest must be left to the womb of time. Why then, it may be asked, should the Classic form of art be advocated in preference to any other? The reasons are two, clear and forcible, and which no amount of argumentation or individual sympathies can overcome. First. In periods of artistic or rather stylistic stagnation and collection, man requires to return for instruction to the spring of art-language,—to that art which illustrates in the most forcible, most direct manner, the great principles of design and æsthetic expression which run through and must form the basis of all styles. Second. That form of art is the Classic as it had filtered itself down to typical perfection from the work of ages in the styles of ancient Greece. The Grecian is the only purely æsthetic style in which "beauty" alone is the shape and character-giving element. It has crystallised down to tangible perfection for the purpose of architectural monumental use the variety of forms and types of art and design as they first exercised themselves in the technical arts and early forms of architecture; and it can be no accident that this work was done by the race who in every other respect excite our profoundest admiration. These types are like the imperishable stock-in-trade of every art; they are like the language with which we speak and must retain if we wish to be understood.

This is the spirit in which the writer advocates the study and resumption of architectural work on the Classic basis. He does not wish that either of the various forms of Classic or Modern Renaissance art be "taken up" and "developed"; such would be as contrary to his ideas as the taking up of any other style; he wishes to see Classic studied because it is the true monument of art, the best school to teach the materials required for a style. Every race or period must found its work on that model; in times of architectural exhaustion, of beginning fermentation, man must return to that fountain to refresh his spirits, revive his æsthetic faculty, and to collect materials and power for new work. Architecture is an art of re-issues, of re-developments, of traditional types and stationary perceptions founded upon man's general nature, which is unchangeable; they live in his recollection, now vividly, now obscured, but always the same, allowing but of slight modification. And, as nature, in all her variety and wealth, shows but very few distinct forms and types of expression, so true art is not founded upon multiplicity of means, eccentricity of invention, or studied variety, but upon wise intelligent combination.

The writer, therefore, welcomes the Classic revival, not for its immediate results, but for its opportunities. In taking it up we shall all, artists and public, go through a wholesome and promising course of instruction. In addition, there is something more congenial in the general temper of this art; we all feel instinctively that it is free from dominating influences, like the Gothic style reveals, and which are antagonistic to the cast of mind of modern man and his institutions.

We know that Classic, as the freer, more natural, more purely æsthetic style, offers less resistance to our attempt to engraft our own individuality upon the same, to vary the use of its features, to apply it to unusual or entirely new conditions. All these are matters which the electric spark of accident often shapes into unexpected revelations, all elements for a future style. In regard to compositional design, the writer would throw open the entire range of styles we know for eclectic application,—all those features, at least, which have force and reason independent of any particular detail, features, for instance, arising out of the liberal penetration of the plan into the composition. In general, composition is regarded too much as linked to particular detail; it is rather the detail which, while retaining its traditional character, may yet be modified to suit the requirements of compositional features. This was the process in Gothic architecture, also in Arabian, Moorish, &c. Composition is therefore really the free, nay, the very freest, factor of architectural design. It is, in addition to the previously-mentioned influences, the most powerful shaping-force of style. Composition, however, should, while offering every inducement to the imagination, retain the character of reasonable necessity, of exuberance tempered by at least the semblance of requirement. The plan and constructional matters intimately affect composition and style, but this influence must be subordinate to, and be dominated by, the general laws of design if we wish Architecture, and not mere prosaic building. The theory of modern times, that architecture as an art is the outcome of practical requirement and constructional necessity only, is radically wrong, most inartistic, unsupported by ancient art, and doomed to failure wherever consistently applied. Architecture is something besides "constructed art"; it is also æsthetic, also sentimental art, and its grandest productions are those which show its various possible elements combined by the spell of some dominating idea to a beautiful harmony.

It is precisely with the view to a tasteful future style that the position of the plan and of construction as elements of style should be rightly understood, for no time has been so fertile as our own in new developments, applications, and inventions bearing upon these matters. It will require all the study and skill we are capable of to enable us to master and solve, as true artists, the complicated task before us, and if we proceed to work on wrong lines and in a wrong direction, but shame and chaos can be the result.

As has been pointed out at the beginning, it is in the detail, elementary and compositional, where the contemporary-revived Classic falls short. The understanding for the traditional types of æsthetic expression, for mouldings, conventional ornament, &c., has been lost; the right use and function of many features, the value of proportion, the use and position of colour, &c., are to many a chapter of mystery, and it is believed that much light may be thrown upon these matters, and the general interests of real art-progress be advanced by the introduction of this "critical column" on the lines laid down in the opening statement.

SEMPERIAN.

AMERICAN ARCHITECTURE IN ITS CONSTRUCTIVE AND SANITARY ASPECTS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the ordinary meeting of this Institute held on Monday evening, December 18, Mr. Ewan Christian, Vice-President, in the chair,

Mr. A. J. Gale, the holder of the Godwin Bursary for 1882 (the first year of its award) described what he had seen during his tour in the United States. He observed that at the invitation of the Council he ventured to bring before the Institute some account of his tour as holder of the Godwin Bursary for 1882, the first year of its existence, although he was obliged to admit his inability to do justice to the subject on account of its extent and varied nature. The tour covered a great deal of ground, and that he had been able to see so much as he had seen was due to the great kindness of many American architects. The tour occupied exactly three months, of which ten weeks were spent in America,—five weeks in New York and the remainder of the time at Philadelphia, Baltimore, Washington, Chicago, Detroit, and other cities. In New York at the time of his visit there were many vast building schemes in hand. Prominent among the matters to which he turned his attention was the work being done by the New York City Board of Health with the view of improving the tenement houses with regard to drainage and other sanitary arrangements. He had, however, dealt somewhat fully with these matters in the report which he had previously presented to the Council. Vast buildings let off as offices formed one of the sights of New York. Such blocks were continually being erected, and the most recent one generally managed to outshine its predecessors in some particular or other. Foremost amongst the works of this kind at the time of his visit was that known as the Mills Building (from the name of its owner, Mr. D. O. Mills), having frontages to Wall-street, Broad-street, and Exchange-place. The building, of which Mr. George B. Post is architect, was nine stories high above the ground level, with a cellar or basement story below. The basement, ground, first, and second floors contained strong-rooms for the deposit of books, securities, and other valuables. All the floors were intended for suites of offices, divisible by means of partitions into holdings of any required size. The lighting throughout he considered good and sufficient, though, judging from the plans, some of the rooms only had "borrowed light." The large entrance-hall was two stories in height, and it contained elevators or lifts constantly conveying passengers up and down, although the building was only partially completed and opened at the time of his visit. The entrance-hall, which contained a well-hole for lighting the basement, had a glass roof. The offices derived their light partly from the street frontages and partly from the lighting space or area over the roof of the entrance-hall. The height of the cellar or basement story was 9 ft., that of the ground-floor 13 ft. 8 in., that of the first floor 17 ft. 8 in., the height of the stories gradually diminishing from the second to the ninth story, which was 10 ft. in height. The walls were of brick, with red brick facings and stone and terra-cotta dressings. The general design consisted of a simple combination of vertical and horizontal lines, very effective and suitable for the purpose, the treatment of the detail generally being Classic. The roof was flat, constructed of rolled iron joists filled in with terra-cotta bricks in the form of voussoirs, and covered with cement. Roofs of this construction had been used upon almost all recent buildings of large size. The main stairs were entirely of cast iron, with the exception of the treads, which were of slate,—ironwork taking the place of wood in the construction of newels, strings, risers, balusters, &c. The internal partitions between the offices were built of hollow terra bricks corrugated externally to receive the plastering. To preserve the handsome hard wood dados from decay through damp from the washing of the floors, marble plinths were provided. He understood that the drawings for this building were prepared, and the building completed ready for occupation, within twelve months from the time that the architects received their instructions,—an illustration of the great rapidity of performance which was characteristic of American building operations. The heating of the building was effected by steam, on the direct radiation system, and the coils of steam pipes standing in the rooms formed by no means inelegant features. The system of steam heating by direct radiation seemed to find more favour amongst American architects than steam heating by indirect radiation, or heating by hot water or hot air. With regard to the apartment-houses of New York, Mr. Gale said he had entered somewhat fully into details in the report which he had presented to the Council. Many of these blocks of buildings in flats were eight or nine stories high, and those for the middle classes were constructed in the most elaborate manner, and provided with all the conveniences that modern construction could command. The construction of the tenement-houses or flats for the lower classes was under the supervision of the New York City Board of Health, who were empowered, under an Act passed in 1867, and amended in 1879 and 1880, to regulate the construction and sanitary arrangements of these dwellings, and the results which had been obtained under this administration were very satisfactory. Plans of all proposed tenement-houses had to be submitted for the approval of the Board, and careful attention to the observance of the Board's requirements with regard to construction and materials was enforced by a staff of inspectors. The higher class of houses in flats, known as apartment-houses, were subject to corresponding restrictions. These buildings were provided with handsome entrance-halls and elevators, continually running up and down. The best arrangement of plan for these buildings was obtained by grouping round a compact central hall,—not too large, in fact, hardly more than a large lobby,—four or five dwellings or suites of apartments. The servants' rooms were kept quite apart. An entrance-court, formed in the basement, and easily entered by tradesmen's carts, gave access to the servants' elevators. This court, which was well lighted and ventilated, was for the most part covered with a substantial roof, the top of which formed the court-yard or carriage-entrance for the residents. The floors were mostly of fire-proof construction, consisting of iron joists filled in between with hollow arching blocks, the ironwork being protected above and below, and joists being laid on the top surface of these fire-proof divisions. Most of these buildings were constructed externally of brick, with stone dressings. The roofs were flat and of fire-proof construction, and the heating was effected by steam on the direct radiation system. Fire-places were, however, provided as well. The wood-finishings were generally

good. Some of these blocks of apartment-houses were built by associations of intending occupiers, who were thus able to provide themselves with exactly what they wanted, and at the same time to be able to choose their neighbours. The plumbing and house-drainage arrangements of New York were also under the control of the City Board of Health. Under their Plumbing Law, dating from 1881, all plumbers had to register their names and addresses, and had to submit sketches and details of all works proposed to be executed by them. The chief point in which the regulations differed from the most advanced English views at the present time was in regard to the material to be used for soil-pipes, which in New York were required to be of iron, which must be properly jointed, and coated inside and out with coal-tar pitch applied hot, except where enamelled surfaces existed. The other rules insisted upon by the Board did not differ much from those observed in the best English practice, but there was a thoroughness about the inspection, and an amount of attendance to minor details, which were far in advance of the supervision of an average English local board. Every precaution in the way of ventilation and the prevention of siphonage was rigidly insisted upon. The Durham House-drainage Company, of Chicago, contend that as it is worth while to convey coal-gas in wrought-iron mains with screw-joints in order to prevent leakage, so it is worth while to prevent the escape of sewer-gas by the same means. This Company uses wrought-iron pipes with screw-joints for soil-pipes, which are strong enough of themselves to carry the entire weight of the closet apparatus without any support from the building. By this means, it is urged, all danger of leakages owing to settlements is completely avoided. For the horizontal or drain-pipes, this company uses cast-iron socket-jointed pipes, the joints being made with lead. These iron drain-pipes could be, and often were, suspended from the under-side of the ground-floor of a building, and were provided with movable caps to allow of inspection or cleansing, if necessary. This system of house sanitation had been adopted in a town built by Mr. Pullman, of sleeping-car fame, for his workpeople. In Chicago and Boston, as well as in New York, great attention had been paid of late years to the ventilation of public buildings. The Fifth Avenue Presbyterian Church, New York, better known as Dr. John Hall's Church, was one of the most successfully-ventilated buildings in the world. It was erected from designs by Mr. Carl Pfeiffer, and was pronounced by Captain Douglas Galton to be the best ventilated church he had seen.* The Madison-square Theatre (of which Messrs. Kimball & Wisedell were the architects) was also very effectually ventilated on the same principles. The most important work now in progress in Philadelphia was the immense block of public buildings to contain the various municipal offices. The buildings occupy a nearly square site, the two frontages from north to south measuring 486 ft. 6 in. and the two frontages from east to west measuring 470 ft., the area of the site being 4½ acres in extent. The offices are grouped round a huge quadrangle. The large tower in the north front was 90 ft. square at the base, and it was proposed to carry it up to a total height of 535 ft., it being surmounted by a statue of William Penn 36 ft. in height. The following were some of the other dimensions:—Height above pavement-line to centre of clock-face in tower, 361 ft.; diameter of clock-face, 20 ft.; height of upper balcony, 296 ft.; total number of rooms, 520; total amount of floor area, 14½ acres; height of each centre pavilion, 210 ft. 10½ in.; height of corner towers, 161 ft.; height of basement story, 18 ft. 3½ in.; height of principal story, 33 ft. 6 in.; height of second story, 35 ft. 7 in.; height of third story, centre pavilions, 26 ft. 6 in.; ditto, wings, 24 ft. 3 in; ditto curtains, 20 ft. 5 in.; height of attic of centre pavilion, 15 ft.; height of attic of corner towers, 13 ft. 6 in.; height of figures on centre dormers, 17 ft. 6 in.; height of figures on corner dormers, 12 ft. 10 in. The substructure was of fine white granite, the superstructure being of white marble. The tower was to be built of squared dimensioned stones, weighing from two to five tons each. It had not been attempted to make the building fireproof in the sense of protecting all the constructional ironwork. The building was being erected from the designs of Mr. John McArthur, architect, under whose superintendence the sculpture and carved work in general were executed after models prepared on the spot. Mr. McArthur's designs were selected in competition in September, 1869, and the building was commenced early in the following year. The total amount spent upon the building up to 1879 was $5,000,000, and the estimated total outlay was $10,000,000.* The new Post-office at Philadelphia was next described in some detail by Mr. Gale. It is being erected under the superintendence of Mr. James G. Hill, Supervising Architect to the Government. The drawings for this and similar buildings were made in Washington, where architectural matters formed a branch of the Treasury Department. Mr. Hill's last annual report showed many court-houses, post-offices, custom-houses, and the like, in course of erection, each under the care of a competent official architect. The essayist then proceeded to say a few words as to the Johns Hopkins Hospital, Baltimore, which he said was one of the most interesting buildings of its kind in the world. This building was the result of a study and examination of all the chief hospitals in Europe, by Dr. Billings, of the United States National Board of Health, who was selected for that purpose under the will of the founder, the late Mr. Johns Hopkins. The architects were Messrs. Cabot & Chandler, of Boston, and Mr. Niernsee, of Baltimore, the last-named gentleman being the consulting architect. Mr. Gale, in conclusion, noticed the methods of constructing iron-fronted buildings, and described the precautions which were being taken in Chicago, Boston, and other large cities against the recurrence of such disastrous fires as those cities had experienced of late years. Several methods of fireproof construction were described, including the one which is being applied by a company under the management of Mr. Wight, formerly an architect.

The Chairman, in inviting discussion, said he thought Mr. Gale had shown that he was a very proper holder of the Godwin Bursary, and he had given them a large mass of information which it was not easy to digest all at once. When Mr. Gale was describing the immense public buildings of Philadelphia, and the enormous scale upon which everything was being carried out in them, he (the Chairman) felt very much like one of the inhabitants of Lilliput. He was reminded of what Professor Cockerell was very fond of dwelling upon,—the description of the stones which were used inthe building of Solomon's Temple,—"great stones," "large stones," "costly stones." The new public buildings† in Philadelphia resembled Solomon's Temple in another particular, viz., in the fact that every stone and every part was prepared ready for fixing before coming on the site. There was a great deal to be learned from the doings of American architects, as detailed by Mr. Gale, and from personal observation during a visit to America he (the Chairman) could fully confirm a great deal that had been said by the essayist.

Mr. John Slater said it seemed to him that America was the country, *par excellence*, where suggestions were to be picked up by architects. To put the matter colloquially, it was the great place for "tips," and there could be no better place for an architect to visit than the States, after studying on the Continent of Europe the artistic and archæological sides of his profession. The Americans were, in fact, so ingenious that their ingenuity was catching, and it appeared to be impossible for any one to visit the States without deriving much instruction. As a proof of this assertion, he mentioned that some time ago he was superintending some work where the builder's foreman was a man who had visited Chicago, and spent some time there in working at his trade,—that of a carpenter and joiner. A very excellent foreman he was. Like Ulysses, he was fertile in resource, and altogether he was a very different sort of man to the average builder's foreman. It appeared to him (the speaker) that builders and builders' foremen were the most conservative men that it was possible to come across. They seemed, almost without exception, to think that what was good enough for their fathers was good enough for them. As a rule, they had very little idea of the scientific principles of building construction. The consequence of this state of things was that if an architect wanted to do anything out the ordinary way it was very difficult to get it done properly. It resulted from this, again, that architects were, in a measure, in danger of confining their work too much in one groove. For these reasons he looked with great delight upon the institution of the Bursary which Mr. Godwin had been good enough to endow, for by its means they would be enabled to get a practical knowledge of a great many of the constructive and other details of the architecture of other nations, and should be taught the wholesome lesson that everything English was not necessarily the best. It was only with regard to what might be called the constructional part of an architect's profession that he made these remarks, for he thought that the attempts which had been made of late years to evolve what had been called a "Victorian" style had not been very promising. The chief points observable in American architectural practice were the means that were taken for economising labour and for utilising waste products. Of course, those results were largely due to the fact that in a new country, where labour was scarce and therefore costly, it was necessary to devise labour-saving machines. To take the use of the telephone as an instance, he believed that in America there was hardly a town of 6,000 or 7,000 inhabitants that was without its telephone exchange, and the amount of time and labour saved by that one appliance alone was prodigious. With regard also to electric lighting, the practical adaptation of that means of illumination was very much more largely developed in America than in this country. Then again with regard to the utilisation of waste products, great strides were being made in the United States. He was reading only last week in an American scientific paper how a large manufacturing firm had hit upon a means of condensing the smoke from their furnaces, with the result that from a million cubic feet of smoke they had been able to extract 4,000 lb. of acetate of lead, 70 gallons of alcohol, and some other useful products, the gain achieved representing not only the value of the products so saved, but including, of course, the preservation of a purer atmosphere. These were only a few of the ways in which the Americans were turning their ingenuity to account. He should have been very glad if, among the other subjects which Mr. Gale had been able to study, some mention had been made of the educational buildings of the States, to which great attention had been paid. A few months ago he (Mr. Slater) received from the Educational Bureau at Washington a treatise on rural school architecture, showing the best means of planning, building, ventilating, and warming such schools, on which, as a rule, only a very limited outlay was possible. In the treatise the scientific laws of ventilation were precisely laid down and illustrated, and altogether the little book was one of the most useful of its kind that could be conceived. If in this country our own Education Department would issue such manuals great good would be done, if only in preventing School Boards from laying down such absurd conditions as were sometimes imposed by them upon architects whom they invited to send in competitive designs for schools. The treatise to which he referred was issued in 1880, and it was stated in the preface that it was hoped to issue further publications dealing with the construction of high schools, academies, and colleges,—in short, with buildings for what we called secondary education. He begged to move a vote of thanks to Mr. Gale for his paper, and he thought that the Institute might be congratulated upon the first results of the Godwin Bursary.

Mr. H. McLachlan said that as an unsuccessful competitor for the Bursary last year, he had much pleasure in seconding the vote of thanks to Mr. Gale, who had evidently made good use of his time and opportunities. It appeared that in America there was great variety of materials; for, besides stone, brick, and wood, iron was also used for the fronts of buildings. It would be interesting to know a little more as to the manner in which buildings of iron and wood were protected against injury resulting from the extreme climatic changes experienced in North America. How was it possible to warm the buildings which were constructed on what had been spoken of as the "iron shell" method? If he understood that

* See *Builder*, vol. xxxiv. (1876), pp. 193, 195, for view and plans of this church, together with description of warming and ventilating arrangements.

* A double-page view of this building, and some additional particulars, will be found in the *Builder* volume for 1876, pp. 712, 715.

mode of construction, the front of the building consisted for a large part of its surface of a mere skin of iron, which would afford little or no protection against extreme external cold or heat. It was well known that the old abbeys of Britain, where the walls were very thick, were warmer in winter and cooler in summer than buildings whose walls were of the thickness now commonly used. With regard to the methods of fireproof construction which had been described, it appeared to him that there was danger in covering up the structural ironwork in the manner described, inasmuch as iron was, as everybody knew, liable to decay by rust, and it was, therefore, advisable to be able to get to the ironwork to inspect it occasionally, so as to judge of its condition. But by the means of covering-up which had been described, such inspection would be impossible. Mr. Gale was to be congratulated on having got together so many drawings explanatory of what was being done in America.

Mr. W. Woodward expressed the hope that, as the paper was one of great interest and practical value, the Council would publish an adequate number of the illustrations to accompany it in the "Transactions."

Mr. Andrew T. Taylor said that as he had just returned from a visit to the United States and Canada he should have much pleasure in supporting the vote of thanks. He could heartily endorse what had been stated by Mr. Gale as to the activity and energy which prevailed in America with regard to architectural and building matters. Great progress was being made by the architects on the other side of the Atlantic. A few years ago it was the habit of all architects in this country to say that no good thing architectural could come out of America, and the works of American architects were, as a rule, looked upon with contempt. But that feeling was fast dying out, for within the last three or four years the strides that had been made by American architects on the artistic side of their work were something wonderful, especially in regard to private residences. Within the period named there had been built in Boston, New York, and elsewhere, houses which, from an artistic point of view, it would be difficult to surpass, even in London. The Americans spent large sums of money on the interior finishings of their houses. They frequently spent 60,000*l.* or 70,000*l.* on the interior of one house. The fittings and joinery were generally of hard and costly woods, and the buffet was very often a part of the construction of the house. Two of the most noticeable and costly houses which had lately been erected were those of Whittier, the poet, and Mr. Vanderbilt. A visit to the mansion of Mr. Vanderbilt, he was bound to say, was somewhat dazzling, so costly and rich were all the finishings and "appointments." Indeed, it was said in New York that several tradesmen had made their fortunes simply out of the furnishing of this mansion, which, by the bye, had for its principal entrance facsimiles of Ghiberti's celebrated gates of the Baptistery at Florence. As to the cast-iron construction of house-fronts, he (the speaker) had been much disappointed with it. He was in hopes that the Americans would have succeeded in evolving a style which would have been suited to the characteristics of the material, but all their attempts seemed to follow more or less closely the lines of stonework, and being shams, they were, of course, failures. One of the most striking features to be observed in connexion with the lofty buildings of New York and other American cities was the very general use of "elevators," or lifts, as we termed them. One or more of these elevators was to be found in every building, and being always in motion there was no waiting by passengers who wished to ascend or descend. The more general adoption of elevators or lifts in London buildings could not but be attended, in his (the speaker's) opinion, by great advantages, foremost amongst which would be the realisation of rents for the upper floors of lofty buildings almost equal to the rents now obtained for ground or first floor suites of rooms. With regard to the Philadelphia public buildings, the lofty tower described by Mr. Gale was not yet built, and it was doubtful whether it ever would be built. The buildings themselves were very French in general massing and grouping, and their architect had evidently made particular study of the Tuileries, Louvre, and the new Hôtel Dieu. The detail, however, was indifferent, though not so very bad for America. The detail of the new Post-office at Philadelphia, and of some other Government buildings in the States, was very poor, showing great poverty of invention. The explanation of this would appear to lie in the fact that all these large buildings were designed at head-quarters in Washington. He agreed with Mr. Gale that many of the large apartment-houses of New York exhibited great ingenuity of planning, and he was able to corroborate all that had been said as to the use of the telephone and other labour-saving appliances.

Mr. Gordon Smith, architect to the Local Government Board, said, with reference to the way in which things were managed in New York and other cities with regard to plumbing and drainage, that he thought it just possible that if all regulations for such works in London were administered by one central authority, such as the Board of Works, we might be able to do better than we now did. But he should like to know from Mr. Gale whether the Boards of Health of New York and other cities were harassed by the operations, just beyond the confines of the areas under their administration, of such a being as our own "jerry" builder?

The Chairman, in putting the motion, said that, having had the advantage of travelling in America, though only for a short time, he was very much impressed by the "go-aheadedness" of the Americans. If a man in the States brought out a good invention connected with building or anything else, it was straightway adopted all over the country until something better was produced, when that, in its turn, was taken up. The Americans did not wait, as we in England did, for things to be perfected before they used them. The telephone, for instance, had been in common use in Detroit for two or three years, and householders who needed the services of butcher, baker, or doctor could, by making their desire known to the officials at the telephone exchange, be "switched on" to the wires connected with shop or surgery, and so could give their orders or ask for advice without leaving their houses. Take, again, the electric light, which had been in general use in Detroit for years, although the English were still waiting for it to arrive at perfection before adopting it. With regard to the subject of ventilation, as carried out at Dr. Hall's church, he (the chairman) could fully confirm what had been said by Mr. Gale. The only quarrel he had with the church was that it was too luxurious, for every person was provided with an easy chair. Not only in regard to ventilation, but in the matter of acoustics, Dr. Hall's church appeared to be perfect. It was built for a congregation of 2,000, but in a building of the same size we in England would pack at least 3,000 people into it. As to iron for the fronts of buildings, he was sorry to hear that his nephew (who was his pupil twenty-eight years ago) had become such a heretic as to adopt iron fronts. He had not done so when he (the chairman) visited Detroit. Long ago, in New York, the enormous store belonging to A. T. Stewart & Co. was entirely built of iron, and it was the most horrible and bald-looking building that could be conceived. With regard to comfort in dwelling-houses, in the coldest weather the indoor temperature was equably maintained at from 65° to 70°. The walls of the houses were so constructed that the occupants did not suffer from changes of temperature, as we did in this part of the world.

The vote of thanks having been agreed to unanimously,

Mr. Gale, in reply, said he was unable to say whether there were jerry builders round about New York. If there were, he did not seek out their works as objects of study. As to iron buildings, it should be remembered that there were two methods of using it, one of which was seen in Stewart's store, where the entire front was of iron treated in imitation of stone, having columns of Classical character and elliptical arches,—the whole design being as unsuitable as it could be for iron; but in New York and other cities a better method of treating an iron-fronted building had sprung up, and he might plead for Mr. Gordon Lloyd to Mr. Christian and others that Mr. Lloyd's iron-fronted buildings were not attempts to reproduce architectural features in an unsuitable material, but they consisted in a combination of vertical and horizontal lines, with ornament which was suitable to cast iron. With regard to the heating of buildings, it was effected in various ways, as by direct and indirect radiation from steam pipes, by hot air, and by hot water. As to the heating of the iron shell buildings to which Mr. McLachlan had referred, there was no difficulty whatever, for between the external skin of iron and the internal walls air-spaces existed, forming, in reality, a kind of hollow wall. Buildings, of course, suffered from great extremes of temperature, but so far as he could judge, the joints were so well lapped and checked in various places that they effectually resisted changes of temperature. With regard to the fire-proof encasement of iron columns and girders, the enclosing materials hermetically sealed up the ironwork, it being believed that where the air could enter fire could also make its way. Hence the ironwork in buildings so fireproofed was not likely to suffer from rust. He was not concerned to defend the detail of the Post-office at Philadelphia, but it ought in fairness to be said that other Government buildings erected under the superintendence of Mr. J. G. Hill displayed an amount of artistic taste considerably in advance of some of the buildings put forward as specimens of Government architecture. In conclusion, Mr. Gale said he agreed with a former speaker in commending the ingenuity of plan shown in the New York apartment houses, which were well worthy of study in this country.

THE LARGEST GREEK TERRA COTTA.

IT was announced some time ago that the Russian diplomatist, M. de Saburoff, who is noted as one of the most successful collectors of ancient Greek works of art, had come into possession of a terra-cotta statue of unusual size and value. At a recent meeting of the Berlin Archæological Society, M. de Saburoff showed two photographs of the relic, one of them representing the entire statue, and the other only the head; and the celebrated Greek scholar, Professor Curtius, availed himself of the opportunity of pointing out the peculiarities and value of the original work. This terra cotta is quite unique, both in its dimensions and in point of artistic execution. It was obtained from Corinth. It is one-third of life-size, and represents a youth leaning at ease, like the Satirus of Praxiteles, on the trunk of a tree. The statue is treated quite after the terra-cotta style. At the back there is the large opening which is commonly found in such works, and the purpose of which was to allow the escape of the excessive heat during the burning process. The whole stamp of the work strongly reminds us of the manner and style of Praxiteles. On the whole the statue is well preserved. The left shoulder is elevated, and the right hip and leg stand forward as in the Hermes of Praxiteles found at Olympia. The figure, too, shows the same inclination of the head, and the countenance the same expression of rapt enthusiasm or reverie. Not only does the general treatment of the body remind us of the Hermes, but also many of the details, particularly the short hair growing up over the brow and the treatment of the drapery falling down in perpendicular folds over the support on which the left arm rests. There are still clearly preserved many traces of the original colouring of the statue. The nude body was flesh-coloured. There are remains of the dark colouring of the hair; and in the hair there are still traces of a wreath, though its particular botanical character is no longer ascertainable. What name the statue bore, or what it is specially intended to represent, is also as yet a secret. As compared with the Hermes, the figure impresses us with its exceeding softness, with the almost feminine character of the pelvis formation, and the position of the feet. It is certain that this terra cotta belongs to the period immediately following the great statuary works of the fourth pre-Christian century, and it shows clearly how the spirit of Praxiteles had stamped itself on the succeeding age.

Lifts and Grilles.—Messrs. Clark, Bunnett, & Co. (Limited), of Rathbone-place, have instructions from the committee of the West London Hospital, Hammersmith, to fix one of their patent direct-acting hydraulic lifts to the new wing of the hospital now in course of erection; and this company are also fitting wrought-iron grilles to the whole of the internal shops, and large portcullis gates, weighing about 3 or 4 tons, to the main entrances of the new Central Fish Market, Farringdon-street, the latter being worked by hydraulic power.

THE FOUNDATIONS OF ART IN ARCHITECTURE.*

It is said of the greatest living master of military strategy, that he is "silent in seven languages,"—a pretty plain suggestion that, in military matters at least, he who speaks the least is likely to know the most. In matters architectural there is some analogy; for at this moment the architects who are producing the best work in England seldom or never make a speech or deliver a lecture about the things they know so well. Among such I could mention several able to tell you more than I am likely to do to-night. But you have chosen to invite me. Your excellent secretary conveyed your wishes in so exceedingly graceful a manner, that an immediate refusal must have savoured of churlishness. I afterwards failed to frame a sufficiently polite "No," and, further, I felt that if the architects of Leeds wished to hear a word of warning and encouragement from a brother North-Countryman, it became, in some sense, a duty to give it. I stand before you, therefore, with some reluctance. I have always grave doubts whether silence and close devotion to work are not the architect's true course. He speaks best through his works. I never heard that Giotto made a speech or wrote anything about architecture, although in his works he is one of the greatest preachers that ever lived. If the attainment of the highest excellence in art be our goal, the race is certainly not to the talker, though from time to time prizes and popular favour be won by him of the greatest noise. He, indeed, may secure temporary fame, and leave bags of money to his heirs. The patronage and applause of the ignorant should never be the architect's aim. He alone wins who has done his work right well,—who leaves behind a record of lofty thought in buildings, and who has succeeded, during his short span of life, in carrying the principles and practice of his art one step forward.

There is another side to the question. Something is due to our brethren,—something necessary towards the public. The aid of language and of public speech cannot be denied to any of the arts, and in reference to architecture it is perhaps essential. Our honest British public cannot read fine art in architecture, like the old Athenians, partly (as some snarling critic will say) because they are not accustomed to have such fine buildings set before them. At any rate, at present they must be instructed through the ear, or their eyes will admire the things they should not. And none but architects can give such education, or can help forward a public desire for better buildings fitly allied with painting and sculpture.

The present time is peculiarly one of talk, rather than of literature, especially so far as we are concerned, for little of it smacks of letters. The whole status of architecture, as a profession, and as an art, has probably suffered from the too great reticence of its leading members. It is fair to judge of this by public estimation, and if we compare the position of architecture with other professions, Law or Medicine, we have cause to deplore it. No man of rank, however poor, has thought it desirable to join this the oldest profession, which ancient Egyptians allowed none but nobles to enter. We have no representative in Parliament. No living architect carries the honour of baronetcy. One only that of knighthood, for political reasons. On the other hand, architects have allowed the bulk of the ordinary buildings to drift into the uncontrolled and vulgar hands of speculative builders, and, on the other, into the hands of special constructionalists eschewing art and calling themselves "engineers." There is no reason why the best architect should not also be the best engineer of his time, like Leonardo, or, at least, why mere constructionalists, who have no higher aim than the desire to exhibit mechanical skill, should not be allied to men possessing knowledge of art.

Now, if we wish to raise the whole tone and status of the profession, how is it to be done? Surely, first of all by becoming better architects and artists ourselves. If we wish to see art advance in our own case, what should be our first step? Surely to abandon copyism. When we have done ever so little a bit of true designing by ourselves, we are in a fair way to do better. So long as we merely copy the productions of others, our life, as true artists, has not even begun. This may sound hard. But it is true. For well-nigh two centuries we have accustomed our British public to the spectacle of unblushing copyism, and now it is taken for granted. Modern architecture has scarcely yet awoke from its condition as a daily lie, and the world has not yet begun to suspect it of truth. When a new building is finished, architects and newspapers unconsciously assume its pinchbeck qualities, and speak of it as "Gothic of the thirteenth century," "Greek," "Elizabethan," "Queen Anne," &c. Turning over the pages of a dictionary, one of the best in the language, I recently came upon this definition: "An architectural construction, in the artistic sense, must possess not only utility, but beauty, and also unity; it must be suggestive of some idea, and referable to some model." Thus, after pretending to describe architecture "in the artistic sense," good sirs, it finally, and in five words, denies it all position as a living art. When a man asks me what style such and such a building of mine is in, I know that he means,—"What past style have I been copying?" So I generally tell him I do not know, for, in his frame of mind, he cannot understand any other reply. Copyism in architecture is just as worthless as it is in pictures. Neither more nor less. Style, as applied to modern work, always means copyism. Our first step must be to set our faces like flints against it.

My hope for the future of English architecture really lies in the younger generation who are coming on. Their life is before them. Let them begin at the beginning. Let them know their construction and the right use of every material with which they have to deal. Let them always, from their outset, work in a true, honest, simple, real way. Let them study sculpture in its relation to buildings, and even essay to do some themselves. Let them cultivate an eye for colour. Then, perhaps, in course of time far hence, style may have come to mean, as it should, a thing of the past, and the day of truth may have dawned. If every man were working in this spirit, by degrees the public might perchance take an intelligent interest in new work, now unfortunately diverted to the damage and destruction of old, and in course of time, a real school of English architecture might again blossom into life.

Thoughts like these were passing in my mind when asked to fix the title of to-night's address. And it appeared to me that I should rather say something to set you thinking, something having for its object rather the kindling higher of such fire as may be in you, than to rattle the T-square and compasses in the approved method of the British architect; most lectures about architecture are either purely historical, and, therefore, need never have been written, or, they consist of well-worn platitudes which, also, you can string together for yourselves out of any architectural library; I have elected to forget technicalities and to avoid the usual architectural jargon. You shall hear nothing of antæ and responds, triglyphs, or tracery from me. Of bewildering and fruitless theories as to this method of construction, or that style of architecture, I shall say nothing. Whether I care most for Greek or Gothic, Queen Anne or Chinese, you shall not know. For the study and dissection of any of the past styles of architecture, I leave you to Vitruvius or Fergusson, Viollet-le-Duc, or Burckhardt.

The title I have chosen is far-reaching, and might be made to cover much more than the limits of a short address will allow. It is not, however, the material "foundations," the concrete and footings, which will claim your attention, however necessary these be to good building, but rather the higher things on which good art must rest when mere building begins to be architecture. In a word, my aims are directed towards the future. The dead past may bury its dead. Let us study the past, diligently and laboriously, so far as we can learn from it. I should be sorry to be misunderstood on this point. The most scholarly architect is likely to be the best. But when we come to our own work, after having studied well the past, let us abandon copyism and apply living principles. In this view I have for some years urged the importance in architecture of three things, viz., good form, good proportion, and good colour, and, I am fain to believe, not without some results. These standards or tests, by which we may from time to time judge our own work and see wherein we have failed, are of more practical use than thousands of pompous platitudes. It is our business first of all strenuously to lift higher and higher our ideal of art. If we are honest workers, our own judgment unflinchingly given on our work should be the only one we really care for. What are loosely called matters of taste are clearly and definitely matters of knowledge, better known to the artist than to the critic. To-night, therefore, in the hope that what I have to say may be of some use, I propose to set before you three other things of great moment to architecture, over which you may chew the cud, and by whose aid you may hold the mirror up to nature. In the modern rush of thoughtlessness, commonly called progress, they are apt to slip out of sight. I name them Truth, Intention, and Rigidity. The first is the starting-post. The second marks the course. By the third you must be judged in the race as by your conscience.

It is ever to be remembered that we, as masters in our craft (I dare not say masters of our craft), are exponents of the age in which we live as well as of the art which we practise. The history of architecture is the history of the world, unbiassed by the leanings of the partisan. It is the handwriting on the wall. He who would know his history aright should also learn to decipher the lessons of contemporary buildings. At the present moment each of us in his own way is unconsciously writing chapters in the history of England. We speak in different languages, some Gothic, some Classic, others perhaps, only a lingua-franca, or even broken English, and frequently fail to grasp one another's full meaning. But what we have to say is recorded in brick, or stone, or marble, and we can never escape the responsibility which attaches to this kind of public writing. It must stand as a monument illustrating the condition of art at the time, and, in its knowledge or ignorance, must either lend additional lustre to a country of which we are all proud, or stamp it with more or less of degradation.

I. TRUTH.

This brings me to the consideration of my first principle, Truth. Whether we speak merely of the right use of material in building, or carry the principle further, truth, all-pervading truth, is as essential to good architecture as it is to moral character in the man. It lies at the root and foundation of all things in architectural art. At the risk of exciting a suspicion that, after all, I am about to deal in concrete and footings, I must first emphasise the importance of truth in the treatment of every separate material with which you have to deal. I do not mean that you are to reveal all the anatomy of your buildings, exhibit all your ugly beams, and notch and stop-chamfer the edges of your doors. Some methods of early workmanship in England have become obsolete. The craft of the joiner, for instance, has certainly made progress since the thirteenth century. I fear I cannot be so sure about that of the stonemason. Our work, or the study of any branch of it, can never be so humble as to be unworthy of being done rightly or studied completely. Old George Herbert well expresses the principle when he says, "Who sweeps a room as in Thy sight, makes that and the action fine." It is in this conscientious sense that I wish to bring you down first of all to the artificer's level as to a foundation, and to impress upon you the importance of knowing some of the secrets of each trade. If you wish to design in stone or brick, wood or iron, brass or leather, silver or gold, you must first learn to be, to a considerable extent, at home in the true workmanlike treatment of your material. Without knowledge of these and adherence to their truth as to a sheet-anchor, there can be, in point of fact, no true design. Your most brilliant ideas, your most beautiful thoughts, can never be grammatically spoken into life and given to the world. The words halt, the speaker stutters, the point of the discourse is lost, and even wanders into quite other themes. I say emphatically that all our beautiful drawing and designing will fail in the final result unless we take heed to this. If ever we are led to admire a noble work belonging to ancient times (I leave the choice to yourselves), and are thinking of the higher qualities of the art displayed, let us pause and look deeper. We shall always find this principle lying at the base. It implies the matured skill of the craftsman possessing traditional knowledge of his material. It involves the incapacity for lying, for torturing the products of nature, or for pretending that your work is something better than it is. In modern times workmen have lost it quite, while many architects only grope

* An address delivered before the Leeds Architectural Society by Mr. Edward Robert Robson, F.S.A., December 4, 1882.

after it. I have occasionally, in out-of-the-way villages, found workmen who had not lost the traditional workmanlike instincts of their craft. But they have been rare. Nearly two centuries of deadness in art, the introduction of the system of building-contracts, and the development of trade-unions, founded only on greed and not to advance knowledge, have done their deadly work. And it is sad to reflect that the English handicraftsman is no longer what he was. In each walk it had taken generations of workmen, in the various trades, to arrive at their extraordinary skill. From time to time it was no uncommon thing to find that one of the more specially skilful had imbibed so large an instinct for first-rate work and love of his craft that the power of design seemed to come to him and he often carried his work into the very realms of art itself. Times are now changed. The workman so little understands the position, and the imminent danger he runs of being superseded on all hands by the foreigner, that he now does not even see the importance of his son serving a regular apprenticeship to his trade. Some attempts are being made to counteract this evil, and technical schools will, doubtless, soon be found in every centre of population in England. With all their value they can never supersede the necessity of apprenticeship, and the imperative duty of acquiring that intimate acquaintance with craftsmanship which is never acquired except through the fingers' ends.

I am scarcely prepared to assert that every architect of the future should enter the portals of the profession through the builders' shops, as I myself have done, though I am ready to admit that it is a very good way. Nor am I prepared to lay down that good architecture can alone spring from the artistic instincts and skill of the workman. There must ever be the controlling mind. There is so much, beyond the workman's knowledge, to be acquired in our profession, that a man's life seems all too short to compass the wisdom of the ancients, the cunning of the craftsman, and the habit of creative design. Our art cannot in these days be left to workmen. The time is yet far distant when architects can be dispensed with. But there is no hope of seeing penal laws in force against the speculative builder or the slovenly workman until every architect in the land himself knows his work and has made himself worthy of his name. Of one thing I am sure, viz., that a much more intimate, close, and accurate knowledge of materials is a vital necessity to architects themselves if the workman in his work is to be lifted higher and higher, so as to become a true exponent of artistic thought in building. When we once fully realise that, for the most part, the British workman seeks to get through his work as quickly as possible, with no higher aspiration than the slave at his task, it behoves architects to use their influence to help, to encourage, and to point the path by every means in their power. And before they can truly help, they must themselves know. How many of us knows his brick, his stone, his iron, his plaster, his glass, his woods, &c., in the same intimate sense that Palissy, or Wedgwood, or Robbia, knew his pottery; Cellini his brass, silver, or gold; Carpaccio his paints; or Matsys his iron? Few indeed. We see on all hands designs failing in perfection at some point or other, from want of full knowledge of the proper use and capabilities of the material. The usual examples of this ignorance were, I am happy to think, more common a few years ago than now (for I am dwelling on no new subject), such as stone moulded and jointed as though it were joiners' work; wrought iron designed as though for casting; cast iron or bronze designed oblivious of the mysteries of the founders' trade; brickwork, with no care about squareness or colour of brick, the laying, bonding, or jointing; joiners' work wrong in every possible way, &c. I say I am happy to think these more glaring defects are less common. They are still seldom entirely absent, as they ought to be, from modern work. Indeed, the instinct which in old times caused men to use materials truthfully seems not only to have died a natural death, but to have largely been replaced by another and singular instinct for doing things wrongly by preference. In the thousand and one small matters which go to make a fine building, this is peculiarly, universally, and painfully true.

If you will accept and act persistently upon the principle of "truth," even at first but in the treatment of material, you will be astonished to find the length to which it will ultimately carry you. If it appear to lead you astray, it can only be because you have not fully understood it. The student of English Gothic work has the advantage at starting, because he cannot have studied well any of the grand specimens of our Mediæval architecture without imbibing, perhaps in spite of himself, some sense of the elementary portion of the principle. It forms one of the finest fields in the world for such study. The principle, however, in its broad aspect, is common to the really good art of all time,—I care not whether it be called Greek or Gothic, or is produced in Italian marble or English brick. It leads the mind more and more closely to the full meaning and beauty, the expression and musical rhythm of every detail, every cornice, and moulding, and carving of the work, and, finally, in its complete mastery, forms the groundwork on which alone noble architectural works can be conceived and carried completely through.

To their intimate knowledge of stone as a building material it was owing that the workman-architect of the Middle Ages could shape the lofty vault, and build the marvellous tracery, which delights us at Amiens, Lincoln, or York. Without it, the "*Magister Lapicida*" of Cologne Cathedral, the "*Ingeniator*" of the Galilee at Durham, and the "*Premier Masson*" of Notre Dame must all alike have failed. To our ignorance of the same thing is due the incessant tinkering found necessary upon the stonework of the Houses of Parliament. Similarly, the cause is not far to seek when the church-destroying restorer pulls a stone from its resting-place of 500 years, and finds, at the end of twenty more, his brand-new stone in a far worse state. We can the less afford to be ignorant; for we have no race of Freemasons working shoulder to shoulder in mutual instruction, and able to bring the special knowledge of their craft to him who would proportion a building. In these days he must know it intimately and thoroughly himself, learning, like any other subject, from the bottom upwards. We can never design with a perfectly free hand and unerring eye; never be more than poor imitators of a bygone time; never infuse into our work real life, without this kind of knowledge.

Another reason, and likewise of the practical kind. Look at the general condition of things in the nineteenth century. The age of despots is past. Englishmen are never in the future likely to live under any worse grinding tyranny than the caucus. Workmen are no longer slaves, even though they care quite as little, or less, about their work. The days when the prelates of powerful churches, or the despots of petty kingdoms, could employ the untold labour of their serfs in carrying out the architect's dreams have gone for ever. As Mr. Ruskin has said, "For us there can be no more the throne of marble,—for us no more the vault of gold; but for us there is the loftier and lovelier privilege of bringing the power and charm of art within the reach of the humble and poor; and, as the magnificence of past ages failed by its narrowness and its pride, ours may prevail and continue by its universality and its lowliness." Here and there an exceptional building falls to the share of an architect,—as a Parliament House at Westminster, a cathedral at Truro, or Law Courts in the Strand. But, as a rule, we must be content to do simple things, and to do those simple things as well as in us lies. Buildings of unlimited cost are now out of the question. Every one who wishes to build wishes also to build with due economy. Be it our aim to help him to build with art also. The time of the workman now means,—to put it in one word,—money. We have to produce buildings simple and good. And the importance to the architect, who would succeed, of knowing precisely how and where to place rightly every shilling of expenditure on his building, whether of moulding or ornament, sculpture or painting, has increased of late a hundredfold.

I am well aware that all this is rank heresy. I shall be told that I am endeavouring to reduce architecture from its lofty position as one of the fine arts down to the level of mere building or of ornamented construction. Not so; not so. Architecture comes after. Get your dictionary definitions out of your heads as fast as possible. You cannot write poetry, or even respectable prose, till you have absolutely and completely mastered your spelling, your verbs, and your syntax. And if you would attain to the greatest mastery, you must also know your Greek and Latin derivatives. Architecture has its grammar, its common verbs, its tiresome syntax, and its derivatives. You must know the several trades involved in building; recognise how one works with and fits into another; harmonise the several parts, like Beethoven chords, and work like scholars knowing the past history of their art, and having distinct aims for its future,—I say you must learn all these, if you would speak the language fluently or perchance write sonnets in it.

Unlike the painter, who places his creations at once upon the canvas, or the sculptor, who petrifies his ideas direct into the marble, the architect has to produce his ideas first on paper, and then to influence his obstinate materials by the hands of others. We cannot send houses and churches to the Royal Academy; and the architectural room there would be a more direct exhibition of architecture if it consisted of photographs of executed buildings. Drawings of the best actual works are constantly rejected, because not drawn or coloured as pictures. The rage for competitions encourages further the habit of showy and deceitful draughtsmanship rather than the serious pursuit of art. Under the presidency of Sir Frederick Leighton, sculpture has made great progress. Never before has there been so good an exhibition as that of last year. We may look hopefully to some similar improvement in architecture.

I fear I have said so much about the prosaic concrete and substratum of my subject as to try your patience. I must pass over the treatment of artistic truth in buildings entirely. That branch of the subject is tempting, but would lead me too far afield. The lower suits me better, to-night, and leads on sufficiently to what I have further to say. A diligent study and constant practice of truth will be found to influence your work so as to give it individuality. Having once mastered your materials in the close, intimate sense which I have urged, methods both of treatment and of construction which before seemed well-nigh impossible will grow easier. Brick and stone, iron and granite, become supple to your hand. Your study of historical architecture will acquire a further meaning. The higher thoughts of art in architecture will by degrees be spelled out. Your own standard will grow loftier and yet more lofty, till at length you may become incapable of doing or suffering ignoble or foolish buildings.*

* To be continued.

THE FIRE AT HAMPTON COURT PALACE.

THE inquest touching the death of the servant who lost her life through the fire at Hampton Court Palace was held on Saturday last, when Mr. Edwin Chart, resident Clerk of the Works to her Majesty's Commissioners of Works at Hampton Court, produced a plan of those portions of the palace affected by the fire, and gave a detailed account of the damage done to the various rooms. None of the works of art in the galleries below had received any permanent injury.

Mr. Mitford, C.B., Secretary to her Majesty's Commissioners of Works and Buildings, said that about six years ago the system for extinguishing fires at the palace was entirely reorganised. A brigade was formed of fifteen persons, of whom four were resident in the Palace. There were monthly drills, and they were periodically inspected by Superintendent Palmer, one of Captain Shaw's officers. There were fifty-five hydrants on the main, which were constantly charged. In addition, there was a fire-main laid on the roof behind the parapet, which would enable the firemen to deluge the whole of the roofs with water, and to the existence of this main he attributed the prompt extinguishing of the recent fire. There was a steam fire-engine of 30-horse power, capable of pumping about 700 gallons of water per minute, and of throwing six large jets to the highest part of the palace. Besides, there were two manual engines and a fire curricle, three hand-pumps, a hose truck, seventy-five fire-buckets, and a fire-escape of Capt. Shaw's pattern. In the picture galleries were fourteen internal hydrants and twenty external hydrants. Six new corridor engines and two hand-pumps full of water were kept in the landings. Printed instructions, with full information for

all persons about the palace, were hung in prominent positions near the hydrants. With regard to the suggestion of placing a tank on some part of the palace, it appeared to him that the main laid along the roof really gave greater security, for with the powerful engine to charge it, there was practically the supply of the Thames. He could not suggest any additional measures that would be an improvement on those already provided for dealing with fires.

Having heard evidence as to the cause of the fire, the jury returned the following verdict:—

"The jury are of opinion that the deceased met her death by being suffocated by the smoke and gases arising from a fire caused by the accidental upsetting of a mineral oil heating-lamp. They wish to add that they think the speedy extinction of the flames and the prevention of extensive damage was due to the excellent apparatus for extinguishing fire at the Palace, and to the exertions of the Palace Fire Brigade, assisted by the officers and men of the 4th Hussars. And they would like to recommend that regulations should be made preventing the storage or use of mineral oils within the Palace."

Mr. Mitford revives an old suggestion by writing to say that every landing of every house in which mineral oils are used should be furnished with a scuttle or bucket of sand. Sand, if thrown upon burning oil, disintegrates it and puts out the flames, which water used in small quantities tends only to spread.

THRONDHJEM CATHEDRAL, NORWAY.

Throndhjem Cathedral, of which we give an illustration in this week's *Builder*,—as it will appear when the works of restoration, which it is now undergoing, are completed,—is an edifice the history of which is so closely interwoven with that of the city of which it forms such a prominent feature that we may be pardoned if we briefly trace the outlines of the records of the latter. The city of Throndhjem occupies a prominent position in the present day among the towns of Norway. It is the third city, as regards population, in the kingdom, and, as the coronation town of the kings of Norway and the site of the Bank of Norway, of great importance to the country. It ranks even higher in the history of the Norwegians, for, independently of possessing a magnificent cathedral, it was the residence of the old kings and archbishops of Norway, and the scene of many remarkable events. The name of the town was orginally "Nidaros," Throndhjem being the name of the "fylker," or shires, bordering on the arm of the sea which is now known as Throndhjem Fjord; the present name of the city dating from the fifteenth century. Nidaros was founded by Olaf Tryggvesön, who, in 996, after vanquishing the mighty Jarl Haco, of Hlade, the ruler of Throndhjem, built a royal castle and a church, dedicated to St. Clement, here. Those buildings soon fell into ruins; they were, however, restored by Olaf Haraldsön, surnamed the Pious, between 1016 and 1028. Olaf Haraldsön died for his faith in the battle of Stiklestad; but his death was destined to become an ultimate victory to the cause he fought for. He was buried in the sand on the banks of the Nidelo, and on his body being afterwards exhumed, it was found to be in a remarkable state of preservation. As it was asserted that hair and nails had grown after death, he was declared a martyr. The probable cause may, perhaps, have been the character of the soil. Olaf was afterwards canonised by the Pope as the patron saint of the North. The shrine containing the body was placed on the altar in the Church of St. Clement, and miracles, it is reported, then became frequent.

After several changes from one church to another, the shrine was at last deposited in the first cathedral of Norway, that of Nidaros, which was built by Olaf Kyrre on the original site of the grave of the saint. This was the beginning of the "Domkirke," or cathedral, of Throndjem, which was consecrated about 1093, and received the name of "Kristkirke" (Christ Church). The shrine with the body of the saint was placed on the altar erected on the exact spot where it had previously lain. This church has, through many architectural changes, blossomed into the present cathedral.

The original church was simply a nave 150 ft. long and 40 ft. wide, with a semicircular choir. For sixty years the church was left thus, and three kings were buried there. In 1151, the first archbishopric was established in Norway, and Nidaros made the cathedral city, its church possessing the national relic. It was now decided to improve and enlarge that church and make it worthy of this honour; but it was not until 1161 that the work was taken in hand by Archbishop Egstein Erlandsön, who added a transept below the great tower, and also the chapter-house. Another king was buried in the cathedral, and the bodies of two others removed there; but since then no more sovereigns have been entombed there. In the year 1200 a fresh period of reconstruction and building commenced, which lasted until 1240. During that time the whole eastern part was reconstructed, and the dome elevated and covered in with slates. From this period, also, dates the Early English apse. It is surmised (for there are no records to guide us) that this addition was the work of English architects, sent by the then Bishop of Winchester, the cathedral of which the Norwegian edifice is said in parts to resemble. The last and final period of construction began in 1248, building operations continuing till the close of the century, during which the western wing was added, and the steeple probably raised. By the end of that century, the edifice stood in its most complete form. The large sums required for completing the great work, as well as the considerable funds the cathedral possessed, were contributed by pilgrims who came from all parts of the then Christian world, even from the Holy Land, to offer their prayers and obtain absolution at the shrine of St. Olaf.

The cathedral of Nidaros was the largest and most magnificent ecclesiastical building in the three Northern kingdoms. Its length from east to west was 325 ft., and its western front, imposing by its images of saints, finely carved in stone, and its rich ornamentation in gold, was 124 ft. long. A lofty tower and spire rose from the centre, and a number of smaller ones from several parts of the building. The interior was largely ornamented with beautiful columns and pilasters of sandstone and marble of various hues, detached, engaged, and clustered. The windows were of stained glass. The nave was in three stories of different heights, two galleries running completely round the church. There were twenty-four altars richly adorned with precious stones. Shrines of saints,—St. Bernhard, St. Eystein, and St. Olaf, the patron saint,—were raised above three of them. The shrine of the last-named saint was placed on the principal altar, the body resting in a silver chest weighing 220 lb., which was enclosed in two cases of choice wood, the outer one being curiously carved in the same manner as the old wooden churches of Norway, and covered with gold and silver.

The cathedral did not remain long in this magnificent state. Fires destroyed one part after another, the last taking place in 1531, when the western end became the heap of ruins it is to-day. The union with Denmark, which destroyed all vitality in the Norwegian people, blunted also the interest in the preservation of the cathedral. The Reformation played further havoc with the interior. The altars with their ornaments were removed, and with them the shrines of the two minor saints. They went to fill the pockets of some Danish potentate. At last the silver chest with the valuable exterior case went also to Copenhagen, all trace of them being lost; the body of St. Olaf alone remaining in its plain coffin. During the Northern Seven Years' War it was carried to Stockholm, but again brought back to the cathedral in 1568. The coffin was now concealed in the church, and has not been found, in spite of the most careful search. Its discovery would be of great interest. Popular tradition has it that the coffin was also to be forwarded to Copenhagen, to rob the king saint of his valuable shroud, but the vessel which was to bear it thither foundered in Throndhjem Fjord with its treasure. Thus, tradition says quaintly, the saint refused to leave the soil whence he had sprung.

By the terms of the Norwegian Constitution of 1814, the kings of Norway must be crowned in Throndhjem Cathedral. Four coronations had taken place before that time,—those of Haco V., the last male descendant of Harald the Fairhaired and the Norse kings; the Swedish protector, Karl Knutsson; and Christian I. and Hans, two Danish kings. Since 1814, three more coronations have been held at Throndhjem, those of Carl XIV., Johan Carl XV., and Oscar II., Oscar I. never being crowned as king of Norway.

With the revival of Norwegian national feeling during the last sixty years of constitutional and personal liberty, a strong desire sprang up amongst all classes to save from utter destruction the few architectural remains bearing witness to former greatness, and naturally the first to be taken in hand was the old cathedral of Throndhjem. It was found to be in a most shocking state of ruin. Time and fire, of course, had done much; but at the hand of man the noble structure had fared worse. It was, for instance, discovered that at one time or another the walls with their beautiful stone carving,—maybe to hide from view defects or idolatrous images,—had been coated with several inches of plaster. The principal work of restoration consists now in removing this covering, and laying bare the original surface without injuring the carving, a most laborious task, requiring much care in its progress. Of other improvements contemplated, we may mention the raising of a lofty steeple on the present stunted walls of the old tower, now merely covered by a gable roof, and eventually the rebuilding of the ruined western portion of the cathedral,—a work which will not be completed for some years.

Of interest in the cathedral is a sacred well on the southern side of the choir, called "St. Olafs Brönd," said to have sprung from the grave of that saint, and in which visitors are wont to drop coins, which resound at the bottom as if the latter were of metal. Another remarkable feature in the church is the obliquity in the foundations of the eastern portion of the cathedral. The great altar has been left untouched during the various restorations, from regard for the traditions attaching to the spot. The church contains figures of the twelve apostles by the famous Danish sculptor Thorwaldsen. Divine service is now again performed in the cathedral. The latter has been the scene of many historical events in the Norse age, and in it have been laid many of the best scenes of the dramas of Henrik Ibsen, Norway's Shakspeare.

The architecture of the first church was Norman, or, more correctly, Norse, the architecture which the Norsemen cultivated in Normandy. The later additions, particularly that made towards the end of the thirteenth century, are Early English.

The work of restoration has now been in progress for nearly twenty years; at times, however, ceasing from want of funds. Some of these have been contributed by the people, but the largest sums have been given by the present king, Oscar II. It is worthy of notice that no funds can be spared by the Norwegian Storthing for the restoration of the finest monument extant of the former greatness of the nation.

The present architect directing the works of restoration is Mr. Christie. A Royal Commission has just been appointed, consisting of the best architects of Norway, to report on and draw up further plans for the work.

SWIMMING BATH: UPPINGHAM SCHOOL.

This swimming-bath has been built this summer, at a total cost of about 1,350*l*. The plan is arranged to meet the special requirements of a public school, as it is proposed to add fives-courts at the back. The buttresses have been regulated by the Eton sizes. Lawn tennis courts are now being laid down in front of the building.

Local materials as far as possible have been used. The rubble walling is of Old Uppingham stone. The dressed stone used is the Casterton grit, and the roofs are covered with plain red tiles from Lord Aveland's yard at Luffenham.

Concrete has been used for the bath itself, composed of Barrow lime and the local hard blue rock, faced with Portland cement mixed with an equal quantity of Derbyshire spar. The colour of the cement has proved satisfactory.

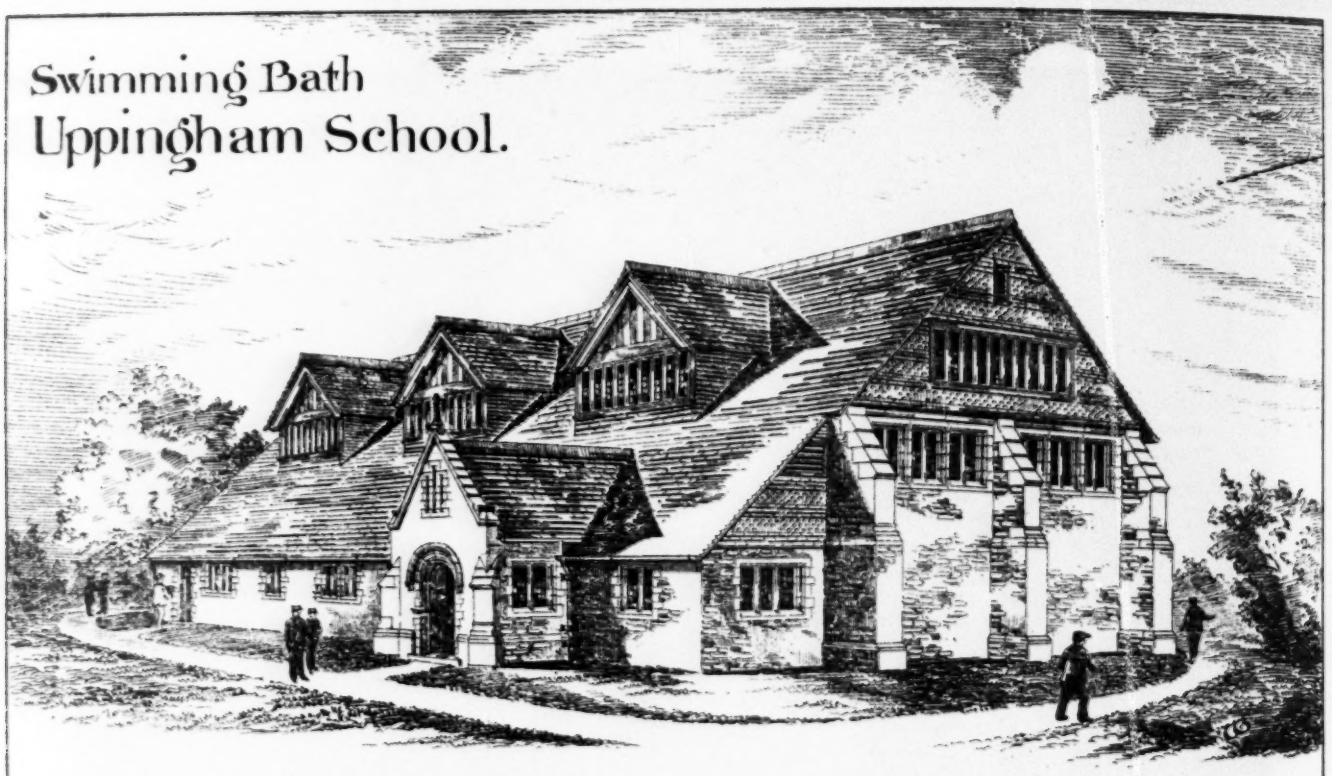
The heating apparatus, by Messrs. Herring, of Chertsey, answers well, and utilises the exhaust steam from the waterworks engines; arrangements also being made to supplement this supply by green steam from the boilers direct when necessary. The condenser contains about 600 ft. of pipe, and the disposition of the flow and return pipes to the heating chamber distributes the heat well over the whole bath.

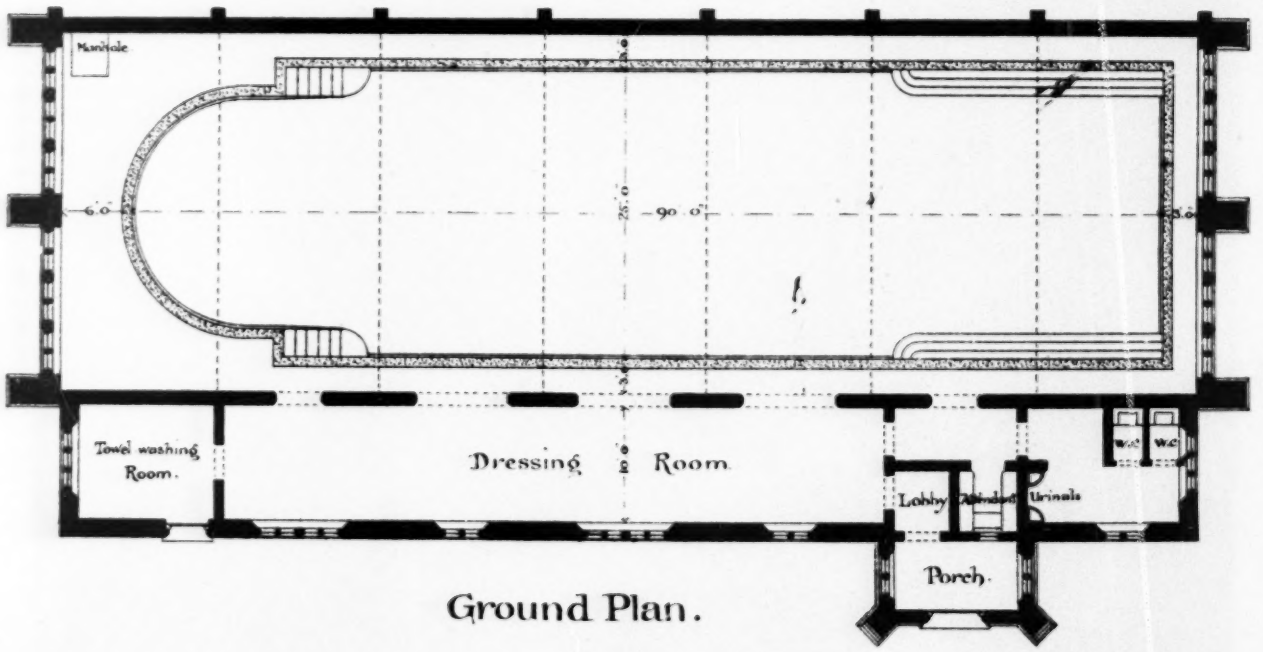
Mr. John Woolston, of Stamford, has carried out the building in a satisfactory manner, Mr. John Brown acting as clerk of the works.

The architect is Mr. Arthur Young, of 19, Queen Anne's Gate.

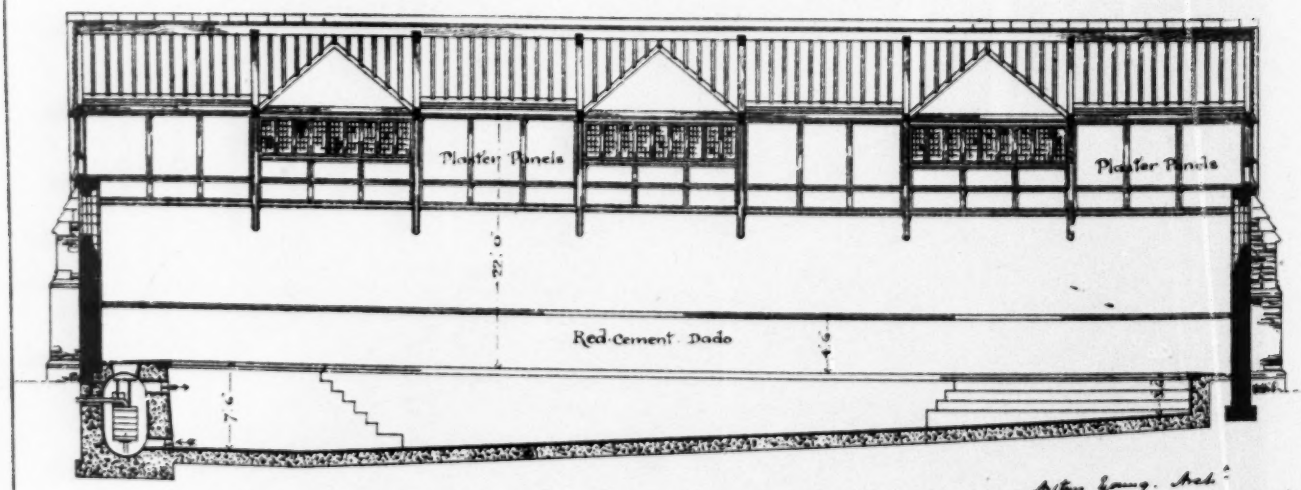
THRONDHJEM CATHEDRAL, NORWAY, AS RESTORED.

Swimming Bath
Uppingham School.





Ground Plan.



Longitudinal Section.

10 5 0 10 20 30 40 50

Scale of Feet.

Thos: Garratt delt. Nov^r 82.

Whiteman & Bass, Photo-Litho 236 High Holborn.

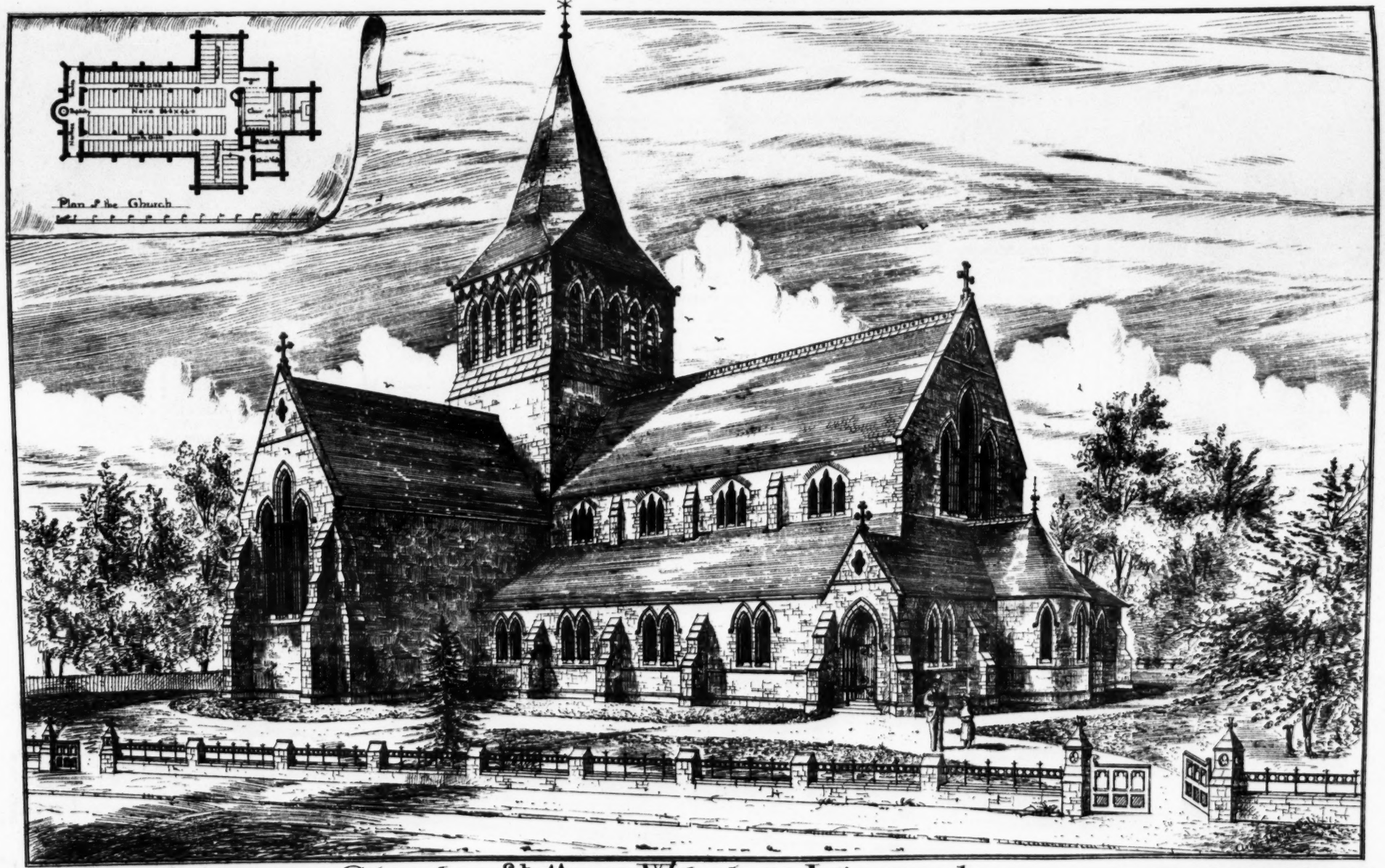
Wyman & Sons, Printers, G^t Queen S^t

Whiteman & Bass, *Photo-Litho* 236 High Holborn.

Wyman & Sons, Printers, 74 Queen St.

RESIDENCE GOFFS HILL CRAWLEY SUSSEX.

WILLIAM BUCK ARCHITECT HORSHAM.



Church of St. Mary, Waterloo, Liverpool.

The Revd. Henry Burrowes ... Vicar.
Chas. R. Williams, Esqre
Wm Thompson, Esqre ... Churchwardens.

W. G. Habershon & Fawckner, Architects
38 Bloomsbury Square, London.
August, 1882.

Front facing down N. Aisle.

roof line.

Church of S. Margaret Westminster.
new
Organ-Case
Arthur G. Hill B.A. F.S.A. design.

Quire front.

top of screen.

solid part of screen.

Wm. Hill & Son Organ Builders London

Feet

Whiteman & Bass. *Photo-Litho* 236. High Holborn

Wyman & Sons. Printers. Gt Queen St.

ST. MARY'S, WATERLOO, LIVERPOOL.

THIS church is in course of erection in Waterloo Park, one of the new and rising suburbs of Liverpool. It is in the form of a Latin cross, with a low tower and shingle spire rising at the intersection. It is constructed of the reddish-brown local stone from Bootle, in random courses, and the freestone dressings are of Corn-grit from Bath. The interior is lined with dark crimson bricks with red bands interspersed with stone, and all the piers, arches, and mouldings are of Corsham stone. The woodwork is entirely of pitch-pine, and of massive character, with open-boarded roof, lined with felt. It will seat about 800 persons, and the total cost, including tower, will be 3,000*l.* Messrs. Habershon & Fawckner are the architects.

RESIDENCE, GOFF'S HILL, CRAWLEY.

THE residence here illustrated, recently erected at Goff's Hill, Crawley, for Mr. Edwin Henty, from the designs and under the superintendence of Mr. William Buck, architect, Horsham, stands on an elevated site, and commands exceedingly fine views of the picturesque town of Crawley and the surrounding country, extending as far as the Surrey hills. It is approached from the main road on the south, and contains an entrance-porch, hall, three reception-rooms, and the usual offices on the ground-floor, six bedrooms and two dressing-rooms on the first floor, and six rooms on the second floor. It is faced with red kiln bricks with Bath stone dressings, and the roof is covered with red local tiles. The contract for the house has been satisfactorily carried out by Messrs. Peter & Redford, builders, of Horsham, whose tender was 3,750*l.*, Mr. Tanner was the clerk of the works.

ORGAN-CASE FOR ST. MARGARET'S, WESTMINSTER.

THE organ in the above church is being completely rebuilt and enlarged by Messrs. W. Hill & Son, and when the work is finished the instrument will be one of the finest in London. The church, having been greatly improved and refitted of late years, from the designs of the late Sir Gilbert Scott, is now an extremely fine one, and it was thought advisable that the organ should be enclosed in a case of sufficient architectural importance to be worthy of the church.

The selected design, of which we give a reproduction, was prepared by Mr. Arthur G. Hill, B.A., F.S.A., and will be executed in oak. The details of the work are in accordance with the ancient examples that can still be seen at Tirlemont in Belgium, and elsewhere.

The organ will stand at the western extremity of the north aisle, and there will be one front facing west and another looking through an arch into the choir.

HERTFORD CASTLE.

THE Castle of Hertford not only is of high antiquity, but the date of its foundation is on record. The Saxon Chronicle relates that in the year 913, Edward the Elder, son of Alfred, threw up two Burhs at Hertford, one at Martinmas, on the north bank of the river, and, later on, one on the south bank, between three of the rivers which here unite. The former of these works has long been laid low, and no trace of it is visible, but the latter has been preserved by its incorporation into the later castle. The mound, standing on the edge of the river Lea, is indeed shorn of its original dimensions, but it remains, and attached to it is the base court with its exterior ditch, once of great breadth and depth, the invariable accompaniment of the mound, and with it constituting the Burh.

Edward's Burhs may have been preceded by an earlier earthwork, for Hertford is reputed to stand on the site of a chief town of the Trinobantes, the British occupants of the district north of this part of the Thames. The Britons, however, if they here established a stronghold, are more likely to have placed it upon one of the adjacent heights, where are several excellent positions for an entrenchment. Probably the existence of a British settlement in a neighbourhood so well protected by its water-courses attracted the invading settlers, for here the East Saxon kings are said to have had a residence, and to this place Archbishop Theodore, consecrated in 668, convened a synod of the National Church in 673.

The Danes overran this part of England more than once, and the camp at Danesbury was probably their work. Also, they are thought to have had a camp upon Port-hill, of which, however, it is said that no traces are now to be seen. It was upon the river Lea, between Hertford and Waltham, that Alfred rendered the Danish fleet useless by blocking up the river, and so preventing their return. It is, however, on record that this was effected, not by actually throwing a dam across the stream, but by the far more scientific process of cutting a number of channels for its waters, each too shallow to allow the vessels to float down. By this means the retreat of the Danes to the Thames was cut off, and they were fain to march inland to the Severn at Bridgnorth.

In 913 the protection afforded by the Hertford Burhs seems to have attracted inhabitants, who occupied both banks of the river Lea, and the town thus situate was raised by Edward into a royal Burgh, held of the Crown by Burgage tenure. Hertford was so held of the Confessor, and so accepted by the Conqueror, and entered in Domesday, which, however, as was not uncommon, makes no mention of the castle, nor, indeed, of the churches. William is said to have strengthened the castle, and he gave it in charge to Peter de Valoignes, one of his followers, who transmitted it to his son Roger, and he to his two sons in succession, Peter and Robert. The male line closed with Robert, whose daughter and heiress, Gunnora de Valoignes, married Robert FitzWalter. The charge of the castle does not seem to have descended, but to have been resumed, possibly as a male fief, by the Crown.

King John, that most erratic of monarchs, held the castle, and visited it in 1212, 1213, and 1216. In this latter year, however, it was attacked by Lewis of France, who laid siege to it from St. Martin's (Nov. 11) to St. Nicholas Day (Dec. 6), and finally took it. Robert Fitz Walter, an adherent of Lewis, took the opportunity to revive his wife's claim, but without success. It was finally recovered by John, and transmitted to his son Henry III., who placed Richard de Argentin in charge of it, and expended 20*l.*, and probably other sums, in its repairs. It 1226 it was held by Hubert de Burgh, on whose fall Henry granted it to be held "*in capite*" by Wm. de Valence, after whom it was held by his son Aymer, Earl of Pembroke.

Edward III. resumed possession in 1327, and granted the castle to John of Gaunt, his son, from whom it finally passed into the Duchy of Lancaster, to which it is nominally attached. Henry VI. kept his Easter here in 1429, and Henry VII. continued to appoint a constable and a porter. It is described as "*castrum non immensum sed pulcherrimum.*" Hertford fared better than most royal castles, possibly from its convenient position as regarded London, for in the reign of Henry VIII. it contained lodgings suitable for the king, and Edward VI. and the Princess Elizabeth were both here. By the latter, when queen, it was alienated to Sir William Harrington, who built a large brick house on the site of the inner gate-house, which still remains. In the time of James I. the castle is described as covering 7¾ acres. The ditch then extended to the roads or streets now known as the Mill Bridge, the Wash, and Castle-street. The mill was upon the Lea just below the castle mounds. The Church of St. Andrew stands about 150 yards from the remaining mound, beyond the river. There was a second mill, probably that on the river above the castle. The castle was finally acquired by Mr. Secretary Cecil, in whose descendant, the Marquis of Salisbury, it remains. It is remarkable that Hertford Castle at no time belonged to the earls who bore the title of Hertford. They were, of course, earls of the county, though this is not specified in the peerages. Their principal eastern seat was at Clare in Suffolk, round which they possessed considerable property.

The strength of Hertford as a military position was very great, and depended upon the low marshy ground by which it was almost surrounded, and which was liable to be flooded by the waters of three, or rather four, considerable streams, "*flumina non profunda sed clarissima.*" Of these, the Lea, flowing from the west, received, a few yards above the castle, the Mimram from the north-west, while a little

below the castle the combined stream is swollen by the waters of the Beane from the north, and the Rib from the north-east, the combined volume flowing forward under the name of the Lea. Below, or south-west of the castle, along the course of the Lea, is a wide breadth of low-land, which even now is occasionally flooded, and which in former days must have been an impracticable morass. In the other direction the ground, though built upon and forming a part of the town, is for some distance around but little higher than the meadow, though here and there, elevated 4 ft. or 5 ft., appear small deposits of gravel. The castle stands upon the right bank, south-east of the river, and its extreme limit, within the counterscarp or outer edge of its main ditch, included a space of about seven acres and a half, something in the figure of an ear, the river forming the shorter side or concavity. In length, north-east and south-west, this space measures 234 yards; its breadth varies from 100 yards to 200 yards, with a mean of 140 yards. The ditch, now almost filled up and in part built over, was about 30 yards broad, and no doubt filled from the river with which it communicated at each end. Within the ditch, taking the line of the old bank or of the present wall, the area is about three and a half or four acres. The mound is placed on the edge of the river, at the north angle of the enclosure. The bank does not include it, but points to its centre, so that the mound, as was not unusual, forms a part of the enclosing defence. The proper ditch of the mound has been filled up.

Of the Mediæval castle there remains only a considerable part of the wall of the *enceinte*, and, it may be, some ancient masonry built up into Sir William Harrington's house, which is still inhabited. This is said to have been the gate-house; if so, it was that of the northern ward, and was upon the line of the wall dividing the one ward from the other. The curtain wall is about 7 ft. thick, and 25 ft. to 30 ft. high, and composed of flint rubble. The battlement is gone or nearly so, and there remains but a part of one mural tower, circular in plan, which capped the south-east angle of the wall of the northern ward. The wall covers the northern and most of the eastern sides of the area. There is no trace of it along the western or river side. No doubt it was less substantial on that side, upon which the natural defence was strong. The south or smaller ward does not appear to have been walled in. It was covered on the three sides by the river and the marsh, and may have been palisaded only. The wall evidently crossed the ditch of the mound, and abutted upon it, or possibly upon the shell keep, all vestiges of which are gone.

The present entrance to the castle is at the eastern angle of the ditch, which is traversed by a road leading to a small and apparently modern doorway in the wall. There is no trace of a main entrance in this direction, but it must be confessed that if the main entrance lay to the south of the gatehouse, it must have been difficult to approach, save by water.

G. T. C.

FIRES AT COUNTRY MANSIONS AND SOME SUGGESTIONS FOR THEIR PREVENTION.*

The announcement that a country mansion has been totally or partially destroyed by fire has come to be recognised as one of those inevitable contingencies that are bound to occur at intervals comparatively of short duration. A fire, no matter where, is a disastrous occurrence at any time, although there may be occasionally some consolation in the fact that it paves the way for much-needed improvements. The Great Fire of London was considered at the period of its occurrence an almost unparalleled calamity, but we have no doubt now, that it was, on sanitary grounds alone, productive of the greatest possible good. But the destruction of some rare specimen of ancient domestic architecture, containing, perhaps, an invaluable collection of art-treasures, and itself rich in historical associations, has no redeeming feature, and when such a calamity occurs on a large scale, we cannot but feel that a national loss has been sustained.

Although there is no doubt that the destruction of many old country mansions is the result of carelessness, or at any rate might have been avoided with the exercise of some care and forethought, yet the greater portion have, I think, come to an untimely end from causes which it was very difficult practically to provide against. I am led up to this remark by a paragraph in *Baily's Magazine* for November anent the loss by fire of Everleigh House, in Wiltshire, in which, with the best of intentions, it is suggested with the view of preventing conflagrations, to have every fire-place, flue, and hearth examined and all timbers too near the fire removed. If a mansion is undergoing thorough reparation, there would be, perhaps, no obstacle in the way of taking up all the hearths, removing all the grates and chimney-pieces, stripping the plastering off walls in the line of flues, and making a general search for wood beams, wood bricks, wood bond, and joint wedges; but I submit that in an inhabited house, the occupier, as a rule, would prefer the risk of a fire rather than have every room reduced to a state of chaos, and the fitments, perhaps, irreparably damaged. Nothing short of what I have described would render it certain that dangerous wood had been removed, and even then the flues themselves might be defective. I grant that no very great danger should be anticipated from the proximity of wood to the chimney-flues, between the top of the wainscoting or skirtings and the ceilings or under-side of cornice, but the element of danger exists all the same, for wood blocks have been found inserted over the fireplace for the purpose of fixing a chimney-glass or overmantel thereto, and wood blocks also for securing the bell-pulls, or bell-cranks, and I have myself seen a block of wood removed from a chimney-breast about midway between floor and ceiling, which went into a flue, and the existence of which can only be accounted for by assuming that it was placed there for one of the above purposes, or was the end of a putlog inserted at the time of building, and for some reason or other sawn off instead of being withdrawn.

The destruction of old country mansions may be traced usually to one or another of the following causes:—First, lightning; secondly, constructional defects,—that is, those which originate from improper construction, and which can only be ameliorated, viz., defective flues, fireplaces, and hearths (so called, but more truthfully bad carpentry in fixing wood contiguous to or into chimney-stacks and fireplaces), timber-beams under hearths, or wood-bearers for supporting the hearths, and carelessly-arranged heating apparatus, hot-air flues, hot-water pipes, and iron-stove pipes; thirdly, spontaneous combustion; fourthly, accidents,—or, more properly speaking, carelessness of a more or less positive order, such as dropping lighted tobacco on carpets, smoking where there is straw from packing-cases and wine-bottle covers, shavings or firewood, or, in the lamp-room, overturning of oil-lamps, setting light to window-curtains reading in bed, insufficient control of lucifer-matches, carelessness with gas, leaving fires unprotected in the grates at night, carrying lighted benzoline or oil-lamps and candles where straw or shavings accumulate from the unpacking of goods, and some others that would appear to rank next only to incendiarism.

With regard to lightning, this may be considered as one of the causes of fire, the danger from which may be reduced to a minimum by the use of lightning-conductors. But these may be rendered useless if not properly constructed or fixed, or if the area to be protected is guarded by only one conductor. The general rule appears to be to place a single lightning-conductor on the top of the highest chimney, and this is assumed to be sufficient to protect the entire building, no matter how large, from the electric fluid, but the Lightning-rod Committee appointed by the learned societies to investigate the subject came to the conclusion that, although the highest point attainable was the proper one to fix a conductor, the area of protection was limited, and the line of limitation was obtainable thus:—"From the point of the conductor draw an imaginary line at an angle of 45 degrees till it reaches the ground. The latter is on the circumference of a circle of which a perpendicular dropped from the point of the conductor would be the centre." The figure, in fact, would be a cone, the conductor-point being the apex, and all the buildings standing on the base of the cone might be considered free from danger; of course there would be as many conductors needed as the magnitude of the buildings required. Where there are lightning-rods it is essential that all underground gas-pipes, water-pipes, or metals of any description are kept a respectful distance from the ends of the rods which are buried in the ground, or the electric fluid, instead of passing harmlessly away in the great storehouse of electricity, the earth, may get transmitted where least expected. With regard to defective hearths, fireplaces, and flues, it is estimated that about three-fourths of the conflagrations in town and country arise from these causes. But the description of the cause of such fires is varied; sometimes we read of overheated flues or defective flues; or, as at Ingestre Hall, from timber beneath the hearth-stone. Practically, the fault is not that of the flues themselves, but of the careless manner in which timber is brought into almost direct communication with them. What is known as a "defective" flue may arise from various causes. It must be remembered that when the chimneys of old country mansions were built, climbing boys were their scavengers, and the conditions under which the soot was removed were far more favourable to that process than by the sweep's machine. Many of these flues are irregular in size, and usually much larger than the present ordinary house-flues, and the result is that the sweep's brush, being too small for the opening, only dislodges such portion of the soot as it happens to come in contact with, and another disadvantage is that the sweep's brush is round, while the flues are square, so that the corners or angles of the flues seldom get thoroughly cleaned out. Still other disadvantages arise from the fact that these old flues, while they often travel for some distance in a perpendicular direction, suddenly go nearly flat, and form what the sweeps call "dead slants," and as the elastic rods of the machine can only bed to a certain curve, the angles of these "dead slants" remain unswept, and, in addition, afford receptacles for an accumulation of soot, which, becoming heated, takes fire and smoulders for a considerable time. Occasionally there are in some chimneys what appear to be recesses made at the sides of the flues, probably as resting-places for the climbing boys, and these recesses and the "dead slants" are the points of danger, as the brickwork becomes hot, while the parging of the flue having probably been scraped away by the periodical application of the sweeping-machine, the mortar-joints of the brickwork get, in course of time, partially disintegrated. As an instance of the danger from these places, I remember some years ago a case where a strong smell of smouldering wood pervaded a bedroom of a mansion. After searching some considerable time without success for the origin of this smell, smoke was seen to come up between the joints of the flooring, and on tearing up the boards the mortar-joints of the bricks between the floor and ceiling were found to have disappeared. On cutting a hole in the brickwork, a large quantity of soot in a burning state was found in a flue of which these loose bricks formed a portion of the side wall. Of course the inevitable shavings were discovered below the floor-boards adjoining the flue, and these were in a charred condition, and evidently on the point of bursting into a flame. Now, had a general search been made for wood, no one would have thought of looking below the skirting-board for danger, especially as this flue appeared to pass in quite another direction. Another source of danger in old mansions is the existence of bond timber in walls; this is practically unknown now in new buildings, but the builders of old were apparently profuse in their use of wood bond, and, unfortunately, they often, with the view of rendering it efficient, built it in the middle of the walls; and I have found, during some alterations, bond in the centre of a wall within a few inches of a chimney flue and blackened from heat. No search could possibly have detected the existence of this element of danger. Cliveden mansion, near Maidenhead, was destroyed by fire in 1849, attributed to wood bond-timbers running into a flue. Chimney beams consisting of oak timbers 9 in. or 12 in. square were usually employed, instead of what we know now as the "chimney-bar." I can find no record as to when chimney-bars were first used, but wood beams are known to exist in houses less than 150 years old. All chimney-beams that I have come across appear to have been fixed about 5 ft. from the floor; and in many old mansions, I have no doubt, these beams still exist, a chimney-bar having been

* From a paper by Mr. Thomas Potter, read at the meeting of the Clerks of Works Association on the 4th instant.

subsequently employed without removing the beam, and a course of bricks built in between the bar and the beam, which would give about the right height for a modern grate. Now, when this beam is plastered on the outside and hidden from view, and a grate is, perhaps, badly fixed, leaving flat ledgments for soot to accumulate on the inside, we may guess the amount of risk incurred. Loughton Hall, burned many years ago, is an example of a mansion burned through the chimney-beam taking fire. An instance of the difficulty of being able, no matter how careful a search is made, to find out and remedy the danger existing from imperfect flues occurred some years ago at a large public building in the North of England, I forget for the moment where, but at the time the hall was occupied by a number of people, when smoke was seen issuing from behind the architrave of a door, and on removing the same, what is described as a "cavity" was found, into which burning soot had dropped, not, I believe, from the flue, but from a "pocket" in the chimney, the soot, it appears, having got there through the "with" or division between the flues and pockets having either got damaged, or been improperly constructed. I think, therefore, we may safely assume that chimneys which have been built perhaps hundreds of years cannot, under any circumstances, be vouched for as safe, at least not from any amount of external examination; and this was my view when, some years ago, it became absolutely necessary to take preventive measures with regard to some suspicious flues. My first idea was to cut away the breasts in the line of flues, and insert terra cotta or fire-clay pipes the whole of the way, but the damage that would ensue in the execution of this project to costly-finished walls rendered it practically out of the question. I found, however, that the flues, although irregular in sectional dimensions, were in no case less than 18 in. square, and that they went much straighter than ordinary modern house flues, and with these two advantages, ascertained at some trouble, I determined to try and put a new flue into an old one, by commencing near the top of the chimney. On the upper or attic floor, therefore, making sure there was no timber above that point, I cut a chase into the flue 5 ft. in length, and large enough to admit a flanged flue-pipe of 9-in. bore. Two pipes were then cemented together with a quick-setting cement,—Roman, I think,—so as to have them in lengths of 4 ft. each. A long rope was passed through the pipes, and attached to an iron bar made to securely clip the bottom of the pipe. The 4 ft. of flue-pipe was then passed down the brick flue, and another 4 ft. having been cemented thereto, and allowed to get thoroughly firm, the 8 ft. of flue was gently lowered, when another 4 ft. was added, and the *modus operandi* was continued till the throat of the fire-place was reached. The rope had, of course, to be passed through each additional 4 ft. of flue, and secured over an iron rod fixed in the brickwork above, while the cement joint was hardening. When an unfortunate "dead slant" was reached, there was no choice but to cut out the brickwork, have another start with the pipes, and make the connexion between the upper and lower portions of the new flue sound and perfect with similar pipes,—which was, of course, no great deal of trouble. On the face of it this would perhaps appear anything but a feasible project, but the actual result was a great success, as the breasts that had to be cut open were fortunately in rooms where it was of but little consequence. One flue I was enabled to pass down through a room, whose height was 24 ft. from floor to ceiling, without disturbing the wall,—a great piece of good fortune, as it was lined with marble for a considerable distance above the fire-place. Several chimneys were treated in this way, and all successfully. The Act of Parliament had occasionally to be evaded, as a boy was sent up if needed, to "ease" the pipes whenever they took to lodging on any "set-off." It was, of course, necessary to allow the cement-joints to get thoroughly secure before sending the flue on its way, and also to well secure the pipes at the bottom, otherwise the sudden appearance of the chimney-flue tumbling into the fire, might at some future time create some astonishment and alarm. The grates necessarily had to be taken out except where they were not enclosed over the fire-place. This work was done ten years ago, and no bad result has followed; in fact, an advantage arose, insomuch as the draught was increased. Before leaving this portion of my subject, I might mention with regard to flue-pipes, as an instance of the difficulty with which any improvement is forced upon public notice, that the original inventor and patentee of pipes for use in the construction of flues found his invention so little appreciated, that after persevering for some considerable time he was obliged at last to sell his stock for drain-pipes at a very reduced cost. Some discussion has taken place at times as to whether flue-pipes cause the soot to drop into the fire, and I find this is so, unless a good long easy bend is given to the line of flue, and very much so if the flue-pipes are glazed. It is for this reason, I assume, that flue-pipes are now made unglazed. Circular or elliptic flues are necessarily much more efficiently cleaned than square or rectangular brick flues, and the up-draught is much greater. It is obvious that circular-pipe flues require sweeping oftener than the ordinary kind, at least where they are swept, for I know of a number of cottages built in a country village thirteen years ago where not one has ever been cleaned, for the occupiers, to show their confidence in the fire-resisting properties of their pipe-flues, simply push up an armful of shavings occasionally and burn them out, and the flames coming out at the top pretty regularly is considered by the neighbours as evidence of the tidy habits of the respective occupiers. A good deal more might be said as to flues and flue-pipes, but not connected with fires at country mansions, and, therefore, inadmissible; but I have no hesitation in stating that the whole-socketed terra-cotta or fireclay flue-pipes, well jointed together, and encased in the ordinary brickwork of a chimney and the cavity between the perimeter of the pipes and the brickwork filled in with concrete made of coke and cement, are, as far as danger from fire is concerned, like "Cæsar's wife,"—above suspicion. Butt-joint pipes and socketed pipes with two sides cut off, cannot, I think, be considered so safe as whole socketed pipes. In connexion with brick flues there is another point as far as regards mansions in some parts of the country, viz., that a great deal of wood is often burned, and that flues get foul much quicker therefrom than when coals only are used, and also that the resins contained in wood appear to create flakes of soot of large dimensions, and more readily inflammable than those engendered from the use of coals alone. Having made the flues all right, if the grate has to be removed for the proper fixing of the first flue-pipe, it will be well to search the fireplace opening for wood plugs, and at any rate to well parge or plaster both sides and back with Portland cement and sand made from crushed coke or broken bricks, a material which will stand heat as well as any I know of, and if a chimney-beam is found to exist, to have it out at any cost. Hearth slabs, if cracked or showing danger, may have to be taken up, but I suggest that a marble or stone curb, just now in common use in good houses, can be fixed, and if the hearth-slab be of ordinary stone or other material of common character, which it would be no loss to lose sight of, a tile hearth on half an inch thick of Portland cement bedded on the slab would render any danger from wood which may be beneath practically out of the question, and the inch higher which the hearth would be above the floor should not be noticed. As the fireplaces are mostly in or about the centre of the walls, and as the beams to carry the floor joists are usually also in the centre, it follows that the ends of the beams often run into the chimney, and should always be looked upon with suspicion, for they have, in fact, been the origin of many conflagrations. Wood chimneypieces and overmantels, even wood coal-boxes, are all more or less "little helps" to a big fire, although not to be classed amongst the dangerous factors; so are wood dados, wainscotings, and skirtings, not necessarily of themselves so much as the fact that they conceal the brickwork contiguous to chimney-flues, and render the discovery of possible danger thereabouts difficult to detect. The battening and plastering or, as is to be found in many old houses, battening and canvassing, of brick walls is fraught with danger, as not only are the walls most likely plugged with wood in all directions, but the battens, being fixed vertically, form so many shallow flues, up which and behind the plaster the flames have no check whatever. Had the battens been fixed horizontally, this evil would, to a great extent, have been avoided. Fixed marble or stone curbs in place of fenders are an element of safety, as the danger of pieces of burning coal or wood falling out of the fire and lodging beneath the ordinary metal fender and igniting the carpet is avoided, so also are the slow-combustion grates, with the fire-boxes resting on the hearth, as the burning embers cannot, by any possibility, fall outside the fender curb. With regard to heating apparatus of all kinds other than the ordinary fireplace grate, old mansions stand at a disadvantage, insomuch as no provision was made in the more ancient ones for anything of the kind. Heating stoves, whether of iron, fire-clay, or terra-cotta, are safe enough in themselves if care is taken that they stand clear of all combustible materials; but it is the iron flue-pipe, necessary for carrying off the products of combustion, which must be recognised as the dangerous element. If the iron pipe is led into a brick flue, the point of connexion made sound, and no inflammable material within some feet allowed, they are of course fairly safe; but in Brecknockshire some years ago, according to a newspaper report, a fire broke out in a country church and was discovered to have been caused by a bird having built its nest at some point contiguous to an iron stove pipe, which, when heated, set the nest on fire; here, however, wood must have been not far away; possibly the flue-pipe was carried up through the roof between the rafters, and the nest might have been in the roof and out of sight. Hot air and hot water appliances are necessarily and usually indirect causes of fire, insomuch as the heat from the pipes and flues parch all woodwork they happen to be near, and render it therefore ready to ignite with the smallest provocation. In new buildings, of course, wood is kept a respectful distance from any danger points. In old buildings this is impossible, and walls, floors, and ceilings have to be cut away wherever required, and contiguous woodwork protected in such manner as seems most desirable. The small bore or high pressure hot-water heating pipes must be, I think, more dangerous in this respect than the large ones. The question was raised some years ago, and it was attempted to be proved that wood might be ignited by being placed for some considerable time against a hot-water pipe, but this is not, I believe, now considered probable.* Hot-air flues should be constructed of some uninflammable material, but I knew of one some years ago made of wood, but lined with the thinnest sheet-iron, and which joined the heating chamber. When a "big heat" was got up it was almost impossible to bear your hand on the wood casing. No expense should be considered in making the room where the heating furnace is placed and the adjoining fuel-room perfectly fire-proof. In old mansions these are generally placed in the basement, and often near the centre of the building, so that there should be as little loss of heat as possible from long flues or pipes.

Having travelled over most of the ground relative to fires which originate from constructional causes, and which probably are the origin of four-fifths of those which destroy country mansions, we come to spontaneous combustion. Although in warehouses and shops where oils and general merchandise are kept, spontaneous combustion is recognised as an occasional cause of fire, it can scarcely be considered as a very dangerous one in the case of country mansions, and probably there are only two ways in which it might occur. The rays of the sun on a hot day have been known, where the windows face the south, to become focussed sufficiently to ignite woollen materials lying on dressing-tables. This is, of course, not a usual circumstance, but it has been the cause of fires, and at any rate might be avoided in hot weather by covering up the dressing-table with some less inflammable material. But where spontaneous combustion is more likely to occur is in the lamp or oil-room, where lamp oils, oils for domestic use, cotton waste, lamp wicks, and oily rags predominate, and where the lamp-trimming business is performed. Here, of course, the lamp-room should be fireproof in all respects, and have an iron door leading therefrom, nor should it communicate with any other apartment. No more rags, dusters, or cotton waste should be kept than necessary, and the lamp oils should be kept in closed iron tanks. An instance of the possibility of a fire from spontaneous combustion I take from the *Builder* of 1854:—"Shortly before the fire at Gloucester Cathedral, the workmen who had been engaged in polishing the throne, and other carved wood-

* Fires have been so caused.—ED.

work in the choir, left off, it being six o'clock. Three hours afterwards the fire was discovered in a pew in front of the throne, where they had left their tools and materials. The men had been employed in applying boiled oil and turpentine in equal proportions to the woodwork, rubbing it with dry cotton rags, chiefly portions of old cotton stockings. These, after use, were placed in a rush basket, and set on the pew in front of the throne. This was exactly the place where the fire broke out three hours afterwards. Experiments have been with the view of ascertaining distinctly whether the fire might not have been caused by spontaneous combustion. The men employed placed their rags, saturated with oil and turpentine, in a rush basket as before. In an hour the outside of the basket was found to be warm, and soon after the rags began to smoke. In two hours a continuous and strong cloud of smoke escaped from the basket, and in three hours the whole burst into a flame. This experiment, we are told, was tried twice, with the same result, and it fully accounts for the fire at the cathedral on the 8th inst., and doubtless for many others." Assuming this to be substantially correct,—and there is no reason to think otherwise,—but little more need be said as to spontaneous combustion, except that when the origin of a fire is attributed to some unknown cause, this may have had something to do with it. With regard to accidental causes of fire at country mansions, these range from causes beyond personal control, such as stumbling and upsetting oil-lamps, to those that come almost within the range of incendiarism, and at any rate are cases of gross carelessness and want of common sense. What, for instance, can be said of a man who would blow out a gas-light and leave it not turned off in an unfrequented place? But I have known this in a mansion; and, unfortunately, we read of many accidents from people who will take a lighted candle or lamp to find out the cause of a gas escape. One of the leading insurance companies stated at a meeting of the shareholders soon after the introduction of lucifer matches that that invention cost them 10,000*l*. a year extra for compensation. But the danger from lucifers might be almost entirely avoided if the safety matches only were used, those which are stated to "light only on the box." Rats will run away with lucifers if they find them, and in their progress through small apertures it is not at all unlikely they may rub against a piece of wood and ignite the phosphorus, which would cause the rat to drop it at once, and leave it burning. Wax lights are worse still, as to an enterprising rat they are objects of special research, and afford him quite a banquet.

The introduction of dinner-lifts and luggage-lifts into old mansions,—some of them reaching from the basement to the attic floor,—are dangerous should a fire break out in the former, as nothing better could be devised to rapidly carry the flames from the lower to the upper regions and all intermediate combustible spots. Iron flap doors should be adapted to each floor to close the well-hole of the lifts, but I believe this is very rarely done. Gas meters should be attended to by day, and the gas at the meter should of course be turned off at night, and, in case of fire, notice conveyed to the gas-house at once that it may be shut off there also. Plumbers on roofs, using fires for their hot metal, are credited with being the originators of many fires,—Canterbury Cathedral a few years since to wit.

From the prevention we now come to the extinction of fires, which must be, of course, a matter entirely different from the system adopted in towns. A large cistern or cisterns on the roof, from which iron mains shall lead through the building, and to which hose-pipes placed in convenient positions can be attached, say in every corridor and on every landing, has been recommended; but this cannot be considered sufficient, for old mansion roofs were never made to carry a heavy additional weight in the shape of tanks of water sufficient to put out an extensive conflagration. Every 1,000 gallons of water weighs 4 tons, and nothing less than 20,000 gallons of water should be available for fire purposes; moreover, the friction, and consequent loss of head or power, would render the fire hose of very little avail in the upper story. Fire hose or hydrants inside a mansion, no matter how supplied with water, would, I think, be unsafe to rely upon entirely; for instance, assuming the fire to break out in the night, and to have gained some headway, the half-dozen or so indoor men-servants would probably think more of their own safety than in forming themselves into a temporary brigade, or the state of terror which such a disaster would occasion in the dead of the night would entirely prevent them doing what was most needed and at the precise place, while those outside who were brought to the building by the alarm of fire would be quite incapable or unwilling to thread their way through the intricacies of winding passages and corridors. A considerable amount of public attention was some years ago given to a means of stopping a conflagration by the use of vessels containing certain chemicals, which, on becoming mixed by means of a blow given to a spring attached thereto, generated a powerful gas. This was proved to be far more effectual in arresting a fire than water; but, unfortunately, the effect would be as fatal to the user as to the fire, and to remedy this, goggles have to be put over the eyes, and a shield tied over the mouth; the vessel is then strapped on the back, knapsack fashion, and with the nozzle and diminutive indiarubber tube in hand, the process of fire-extinguishing is performed. Although, no doubt, effectual at the commencement of a fire, it is apparent this can be of no use if the fire has assumed serious proportions, and the dangerous nature of the contents would prevent many from having such a fatal material strapped to them. Still, it is a useful machine, a "little help," and might, and perhaps does often, prevent a "bigger help" being needed. A suggestion was made in one of the journals at the time, when it was thought that this gas was going to prevent all extensive fires in the future, to confine it in tanks at various points, and lay it on to every room of every house, to be turned on with a tap where required as with ordinary gas or water. Possibly the householders of the period thought it was quite as pleasant to run the risk of being burnt to death as to be asphixiated by any slight escape, or accidental turning on of the gas; but this perhaps was quite as sensible a suggestion as one given by another writer, who, after a large fire in London, seriously proposed that all the water-mains might be laid along the streets on the top of the houses, so that some one had only to go on the roof and turn on a large tap, and what at the commencement was a fire would in the end become a deluge. Equally useful are the small hand-engines on two wheels, which can be carried or wheeled through any door, but must necessarily be supplied with water from the nearest taps by means of buckets. The advantage of these little engines is that the water can be directed to a considerable height, where perhaps it would be impossible otherwise to reach, or the heat would be too great to approach with ordinary hand-buckets. It is needless to say that where a smell of burning wood is discovered and cannot be detected, the spot should not be left night or day, for it might smoulder for many hours, and that water should be got ready for immediate use if required. But there are many mansions where scarcely any facilities exist for the extinction of fires; and, on the other hand, there are many where every possible means within reason are adopted, and if I describe the means at one of the latter class, that comes within my knowledge, it will answer the purpose as well as any other I can adopt.

My typical mansion stands on an eminence, miles away from any fire-engine. Below it there runs a river, and behind, but about half a mile distant, the ground rises very considerably. At the river side, and at some litte distance from the mansion, is a water-wheel, and formerly this wheel was the motive power which forced the water from a shallow well near the wheel to a cistern on the roof of the mansion. At present an artesian well near to the water-wheel supplies the water, which is forced by the wheel and a treble-barrel pump through a 4-in. cast-iron main, to a tank made in the ground, holding 20,000 gallons, on the distant hill, three-quarters of a mile away, and 40 ft. above the level of the highest part of the mansion. About half-way between the water-wheel and the tank, and at the nearest point to the mansion, a 4-in. branch is taken off the 4-in. main, and carried first all round the mansion, and then in the building, to ordinary domestic service cisterns on the roof. On its way to the roof 2-in. brass pipes are taken off, and to these branches are attached hydrants at various landings and accessible parts of the building. On the outside hydrants are placed in the grounds, about 60 ft. apart, attached to the 4-in. pipe. The underground tank, holding 20,000 gallons, in addition to serving the mansion with water for domestic use, supplies also a farm and all the buildings which the pipes pass on their way from the pumps. But as the water in this tank is being continually drawn for general use, a larger open tank, holding 100,000 gallons, has been made near thereto, the water in which is entirely reserved as an auxiliary supply, in case of fire, and is prevented from entering the main by a stop-cock placed on the same; 300 ft. of fire-hose, with nozzles already attached, hang on pegs, just within the building, for the outside hydrants; and other hose-pipes are suspended over each of the inside hydrants. Here, then, is every facility for discharging an immense quantity of water on the highest part of the building as soon as the hose can be attached to the hydrants; but, in addition, fire-buckets hang in a row in the hall, electric alarm-bells are fixed to each external doorway, a fire annihilator stands ready to be buckled on any one who has no fear of being asphyxiated, telephonic communication exists between the mansion and the stables, the home farm, and the clerk of works' house, so that help could be obtained quickly; also telegraphic communication to the nearest town; a watchman perambulates outside the building all through the night, whose movements are known by a tell-tale clock, the register of which is carefully taken every morning, and fire-ladders also hang up adjoining the house and which will reach to the roof. Of course, in case of accident, there are stop-cocks at different points of the main, but these are usually kept open, and, at any rate, a white post is placed against each, on which is distinctly painted, "Fire-cock, turn left to right," and the keys for these hang at the nearest convenient place, well known and constantly in sight of all whose business brings them near thereto. It is obvious that in the case described the conditions are favourable for an efficient supply of water at high pressure. Were no such facilities available, a steam-engine would, of course, be necessary to pump the water, and a water-tower built, having a large iron tank on the top. I am told that the cost of maintenance of the whole system of water supply and distribution described does not exceed 100*l*. a year, excluding the wages paid to the watchman, which are not taken into account, as his functions are more especially to arrest the progress of any one having burglarious proclivities. I may incidentally mention, with regard to the appliances in use for the protection of mansions from fire, that both leather and indiarubber hose are unsuitable, not only on account of their weight and cumbersomeness, but more especially because they are liable to crack when not in pretty constant use, and that the best for the purpose is "Vaucher's Canvas Hose," which is light, economical, and capable of standing a high pressure of water. The water in iron mains should not be allowed to remain there more than a month, otherwise the oxidation of the iron has an injurious effect upon the hose when the fire appliances are all under trial, which, of course, should be at stated intervals. But there is a weak link in the chain, even in the arrangements I have just described, for should a fire break out in the night, some considerable time would elapse before sufficient help could be obtained, and in the meantime, unless kept in check, an uncontrolled fire raging in the midst of a mass of parched timber and other combustible materials would probably defy the endeavours, no matter how energetic, of men with no experience as firemen. This is a difficulty not easy to cope with, although I believe an instructor is sent from the London Fire Brigade to many private residences in the country at a low charge to give instructions how to act in case of fire. It is a well-known fact, however, that many persons when called upon in an emergency at a moment's notice to assist at some sudden calamity, for which they have had no intimation and no previous experience of a similar character, "lose their heads," and some extraordinary tales are known and told of the doings of people placed in that position. Incidentally, I might mention that formerly the members of fire brigades in country towns, and London also most probably, were selected from mechanics and others employed in building operations, probably because they were more accustomed to "run ladders" than any other class, and I believe this system still obtains in some parts of Germany and other portions of the Continent. It

is passing strange to note the money expended in ways and means for the prevention of fires, and the actual money loss sustained through fires, and yet to find that nine-tenths of the buildings erected appear to be built expressly to be burned. Let the casual observer take his stand in an ordinary building when "in carcass," before any plastering or flooring is laid, and look round him. He will find the wood very fairly distributed for a good fire, or rather a bad one; and then let all the wood that is to come in for finishing be distributed about,—plastering laths, floor-boards, doors, stairs, skirtings, fitments, &c.; then add the wood furniture, and he will behold "wood to the right of him, wood to the left of him, wood in the front of him, wood everywhere." I find in an ordinary house just erected, and standing on an area measuring 56 ft. by 36 ft., that the actual weight of wood of all description used in construction thereof is about twenty-nine tons. Now, what chance is there of checking a fire which, unobserved, has made considerable headway in an area of 224 superficial yards, in which there is heaped up as much wood as took twenty-nine horses to draw there, and no means of obtaining water except as much as can be pumped up by an ordinary hand-pump from a well?

A writer in the *Manchester Courier* some years ago stated that in Japan the law was that the occupier of every house burned down, whether accidentally or otherwise, should be beheaded; and the same writer follows up this statement by gravely remarking, "there are very few fires in Japan." Now, this law might be profitably copied in this country, with certain amendments,—for instance, transfer the onus of responsibility to the builder; make the law provisional, say for the next twenty years, and to apply only to buildings erected after the passing of the Act. This would do more towards rendering our habitations fireproof than all the moralising and preaching that has taken place these last forty years, and, when once fireproof buildings were found to be as easy to erect as combustible buildings, no one would be found to occupy one of the latter with the chance at some future time of being roasted alive. I grant, builders would raise personal objections to an Act of Parliament that would virtually hang the sword of Damocles over their heads for the rest of their days; but every national benefit must of necessity press heavily on an infinitesimal portion of the population for a time.

Seriously, the saving of valuable property and valuable lives, simply by making our habitations to all intents and purposes fireproof, will not be accomplished until it is made penal to build them otherwise. The thin end of the wedge has been inserted in certain rules and regulations laid down by the municipal authorities in large towns with regard to the use of wood in buildings; but beyond this, with our national disinclination to do matters different from our forefathers, no further steps will probably be taken to prevent loss of life and property from fire for the next century or so.

I must plead in extenuation of all weak points contained in this paper, that it is a subject upon which, compared with many others, but little has been said or written; on that account, however, perhaps it may be the more interesting to the members of this Association; at any rate, if it be the means of helping to prevent in the future such losses as have lately occurred in the burning of Ingestre Hall and Clevedon Court, my time will not have been wasted in drawing attention to "Fires at Country Mansions and Suggestions for their Prevention."

At the conclusion of the paper a hearty vote of thanks was accorded to Mr. Potter for the very able manner in which this subject had been brought before the members.

The discussion on the paper was postponed until the next monthly meeting.

Taunton.—The fifteenth-century nave roof of Thorne Faulcon Church, near Taunton, has just been substantially strengthened and repaired, and re-covered with Delabole slating. The lath-and-plaster ceiling has been removed internally, the old oak ribs repaired, renewed, and brought to light again. A curious oak cornice of the middle of the seventeenth century was found concealed under a much later plaster cornice. English oak boards in narrow widths replace the lath-and-plaster ceiling. The work has been executed by Mr. Hawkins, of Glastonbury, under the superintendence of Mr. B. Edmund Ferrey.

BUILDING FRONTAGES ON THE THAMES EMBANKMENT.

We regret to hear of a proposal by the City Lands Committee of the Corporation of London to let the vacant land adjoining the City of London School, at the Blackfriars end of the Thames Embankment, for building purposes, without any restrictive conditions as to the line of frontage to be adopted in the new buildings facing the Embankment. A board has been set up on this vacant land showing the proposal of the committee of the Corporation.

Mr. H. W. Brewer writes to the *Graphic*:—

"I venture to suggest that the proposal of the Corporation of London, if carried out, will, to my mind, quite ruin the picturesque effect of a large portion of this fine esplanade, viz., the part which extends from the Temple Gardens west to the City of London School east. The proposal in question is to bring forward the houses erected upon this site to the line of the street, or rather footway, instead of keeping them back to the inner line of the Metropolitan Railway. The effect of this will be to make the Embankment look very narrow, and the fine view of the Temple buildings and their beautiful gardens will be entirely built out when looking from the City end or from Blackfriars Bridge, while the noble gable of the City School will be blocked out when looking from Westminster. Unless the matter is brought to the notice of the Corporation in some of the papers, this plan will be carried out, and the opportunity of making a really grand thing of the Embankment lost, and this after so many thousands have been expended upon it. . . . . The ground does not appear to have been sold at present, and it is not impossible that an appeal to the Corporation upon artistic grounds might cause reconsideration of the present scheme Although setting the houses back would cause a certain pecuniary loss, yet I believe that the City authorities would be willing to make the sacrifice, if they could be convinced of its extreme advisability. If, however, the question is not taken up at once, it will be too late, and the opportunity of reserving this fine open space, with its remarkably picturesque outlook, will be for ever lost."

We agree perfectly with these views, and it only needs a visit to the spot to see how the general appearance of the Embankment would be damaged by a number of ordinary house-fronts coming right up to the line of the footpath. If ever there was a good opportunity for creating a shady boulevard or garden, with advantage to the public, it is here. There is every reason why the building line should be set back at least as far as the front of the City of London School, leaving as an open question the method of dealing with the land immediately on top of the Metropolitan District Railway tunnel, whether by forecourts or gardens attached to the houses, or by a shady public walk planted with trees. If the Corporation of London, through the City Lands Committee, could be persuaded to set back their frontage-line as far as the south end of the buildings in King's Bench-walk, the artistic effect would be greatly enhanced; but we fear this is too much to hope for. We are informed on good authority that the retaining-walls of the railroad beneath this land are certainly not strong enough to carry the superincumbent weight of lofty buildings; and the presence of two ventilators in the top of the tunnel renders the land still more difficult to deal with as ordinary building land. Can it be that the Corporation of London, which through one of its committees has behaved so generously in giving to the London public the costly land and buildings of the new City School, will stultify itself by allowing another of its committees to spoil its own work by letting this adjoining vacant land without restriction as to building-line, in order to obtain a few hundreds a year extra income in the shape of ground-rent? Surely any private landholder owning this land would insist upon a set-back line; and, if so, should not the Corporation (who are, in fact, trustees of the public) deal with this land in the most liberal spirit? Has the Superintending Architect of the Metropolitan Board of Works no power to define the line of building frontage along the Victoria Embankment (the finest road in London)? Or is it the voice of the Press only, and public opinion at its back, which shall prevent this great mistake?

The Electric Light at Brighton.—After a long discussion, the Brighton Town Council on Wednesday resolved to apply for a provisional order under the Electric Lighting Act. The draft order provides for the compulsory lighting of a considerable area of the town.

WEST LONDON SCHOOL OF ART.

MR. MUNDELLA, M.P., ON ART-TEACHING.

The annual presentation of prizes to the students of the West London School of Art took place last Monday evening in the large room of the School, Great Titchfield-street. The Right Hon. A. J. Mundella, M.P. (vice-president of the Committee of Council on Education), presided, and was supported by Mr. F. Davison, Mr. J. D. Crace (hon. sec.), Mr. Robert W. Edis, F.S.A., Mr. W. J. Holland, Mr. G. A. Thrupp, &c. There was a very large attendance. The walls were hung with some excellent drawings and paintings executed by the students.

Mr. Mundella, M.P., who was warmly received, said:—Ladies and gentlemen, it is my first duty to call upon your head-master, a very old friend of mine, whom I am glad to see at this West London School of Art, to read the annual report. Mr. Rawle, I may assure you,—and I dare say most of you know,—is a gentleman who acquired a very high reputation for what he had done in a provincial school with which I for many years was connected. His exertions in the town of Nottingham are remembered with gratitude, and the trade has flourished in a great measure from the impulse he gave to art-teaching there.

Mr. John S. Rawle then read his annual report, from which it appeared that 558 students attended the school, showing an increase of one on the previous year. The day classes were attended by 160 students, and the evening classes by 398. The school fees show the highest amount ever received, namely 868*l.* 8s. 7d., giving an increase of 42*l.* on the year 1881, and an increase of 110*l.* 5s. 2d. on the fees for 1880. The Government payments on results amount to 435*l.* 14s. 11d. "Last year we received 440*l.* 13s. 4d., and in 1880, 347*l.* 3s. 3d. We sent 3,896 works, executed during the year, to South Kensington, for examination, against 3,888 in 1881, and 2,577 in 1880. We have, this year, taken exactly 25 per cent. of the National Competition Medals, &c., awarded to the thirteen Metropolitan District Schools of Art. In the highest, or 'Third Grade Government Advanced Examinations,' this year, we have reached our highest point of success, twenty-nine students having gained twenty successes, against eighteen last year, and fifteen in 1880. Forty-eight works were considered worthy of 'Government Third Grade Prizes' in the advanced stages of study. Twenty-seven gained this distinction in 1881, and twenty-two in 1880. Nine students gained 'Government Free Studentships' against eleven in 1881, and two in 1880. In the Elementary, or 'Second Grade Government Examinations,' in freehand, geometry, perspective, and model drawing, we gained thirty-two prizes and 105 certificates, total 137 successes. In 1881, there were twenty-two prizes and ninety-seven certificates, total 119 successes. In 1880, the number of successes was 101. With regard to the 'Government Payments on Results,' in 1881, the West London School gained a higher grant than any other school in the kingdom. The payment on results is the best testimony as to the general quality of the whole work of the school."

Mr. Davison then submitted the financial statement, from which it appeared that last year there was a deficit of 1,305*l.* An appeal had been made, with the following result:—The Duke of Westminster, 100*l.*; Mr. Tarn, 100*l.*; Mr. Crace (hon. sec.) and his father, 100*l.* In all 769*l.* had been collected, thus enabling the school to discharge a considerable portion of its liabilities.

Mr. J. D. Crace, hon. sec., said that in regard to the travelling studentship, he believed this was the only school which possessed one, and in future the committee would be obliged to demand very close attention to the conditions attached to that prize, viz., the study of ornamental and applied art, the value of which could not be exaggerated.

Mr. Mundella then addressed the students at some length on the subject of art education. He wished, he said, first to explain the reasons which induced him to come amongst them that evening. In the first place, he had a very cordial invitation from the committee, amongst whom he found the names of gentlemen who had won for themselves a very high and an honourable distinction in connexion with art industry and art manufactures in this great metropolis. In the second place, when he submitted the request of the committee to the

authorities at South Kensington, the Art Director was as pressing as Mr. Crace that he should pay a visit to this school, which, he said, was one of great promise, and one of the best of its kind in the metropolis. Moreover, it was pointed out that the school contained the right elements, and on that account especially deserved encouragement and support, for it was composed in a very large measure of two classes,—of the employers of art workmen, and of those employed in connexion with industrial, decorative, and ornamental art. He had spent a great part of his life as an employer of labour, to a very large extent, in one of our provincial towns, and at the head of their school of art they had that excellent master, Mr. Rawle. He (Mr. Mundella) consequently wished to be present that evening to see what progress had been made. If he wished to point to a successful school of art he should choose that at Nottingham. The lace-manufacturers of that town had thrived and were aggressive against the manufacturers of the whole world, and they were now competing most successfully against France, mainly because they had applied good art to manufactures. Then this school, it was pointed out, was composed of the two elements which wanted bringing together in order to place England pre-eminent in art,—the art-employer and the art-workman. Of the 550 students, he believed considerably more than half were so employed daily. It was precisely the object for which the Government originally founded and subsidised schools of art. The first grant,—1,500*l.*,—to encourage art as applied to industry, was made through the Board of Trade in 1836, and that body administered the gradually increasing grant down to 1854, when the duty was transferred to the Science and Art Department. The object of the Government was not to create producers of "pot-boilers"; not to increase the number of pictorial artists who every year found some thousands of pictures rejected by the Royal Academy. Their object at South Kensington was not to double the number of these rejected pictures,—that was the work of the Royal Academy. If, as had been said, the South Kensington School contributed 25 per cent. of the students who entered the Royal Academy, they contributed too many. A jealousy had been assumed by some people to exist between South Kensington and the Royal Academy, which was a pure fiction. There could be no jealousy or conflict, and he was fully convinced that South Kensington had been eminently successful in accomplishing the object for which it was established. Speaking on that occasion, as Vice-President of the Council, he was only expressing the opinion he, himself an employer of art-labour, had long since formed, when he stated that South Kensington had been eminently successful in accomplishing the object for which it had been established. Art schools had accomplished their original purpose. He had already shown that the first grants in aid of technical art-training had been very small at the commencement. But in 1851, the first Great Exhibition was held Perhaps but few present could remember that exhibition, but he remembered it well, because he had not only been an exhibitor in it, but he had been a commissioner for his own locality. He had, moreover, a very lively recollection of the character of British art which was shown at that exhibition. It appeared to him in 1851, and he held the same opinion still, that if all the British art work of the first half of the present century, in its wall papers, its decorations, its hangings, and its very heavy furniture, had been collected in one vast pile and burned up, the world would not have been any the worse for it. Of one thing he was quite satisfied, and that was, whatever fashionable craze might prevail in the future, no one would ever dream of making a collection of the furniture and other works of decorative art of the first half of this century. We might well look with pride upon the productions of the days of Queen Anne, which had been designed by men who, although they made furniture, — like Chippendale, — were great artists; of the days when Flaxman designed for Wedgwood; and when the architect left the impress of his genius, not only on the structure of the house, but upon its very door-knocker. It was impossible to compare those beautiful works of art with the clumsy productions of later times without astonishment that the taste of this country could have so immensely degenerated. Our deficiencies having been made very plain to us in 1851, they owed the greatest debt of gratitude to the late Prince Consort for the stimulus he had given to art and to art manufactures and industries in this country. The effect had been seen in the last thirty years' subsidy of art in educating, first the customer, then the producer, and then in the increasing art merit of the productions. In his own town thirty years ago, if a designer was wanted they sent to France for him,—to Paris, —Englishmen being considered as destitute of originality; while now, so totally had things been altered, it was thought that Englishmen had more originality and feeling for art than Frenchmen, in spite of their great advantages of living constantly in an atmosphere of art, amid art classes, and with an enormous demand for art productions. Every exhibition which had taken place since 1851 had shown the enormous strides England had been making, until in 1878 the French had fairly stood aghast at the products of some of our London furniture houses, for instance, as also in the case of the marked advance shown in every article exhibited by British manufacturers. Where, now, was to be seen our heavy and inelegant mahogany furniture, our carpets, with their lions and tigers and impossible animals, our hideous wall-papers, with their baskets of fruit and gaudy colours? These atrocious productions had all disappeared, he hoped never again to return, and their place had been taken by works of art of the graceful design and exquisite workmanship which now gave us so much pleasure and enjoyment as we saw them in our shop-windows in walking along the streets of London. While, however, we had undoubtedly achieved a great success in the cultivation of a taste for applied art, we could not afford by any means to rest content with our present advance. It was true that this development of artistic taste had enormously increased the demand for our art products throughout the world, and had given as great a stimulus to our export trade, but we must not forget that we were about to be exposed to a very severe competition. Let them see for a moment how this great advance, of which he had a right to be proud, had been brought about. The amounts spent by South Kensington since the Science and Art Department had taken up this branch of instruction were as follow:—In 1862, the total grant made to schools of art in England was about 12,000*l.*; in 1871, 30,000*l.*; in 1877, 62,000*l.*; in 1881, nearly 70,000*l.* As to numbers taught, in 1857 30,000 children had received instruction in free-hand drawing in the elementary schools of the country; in 1862, 71,000; in 1871, 166,000; in 1877, 541,000; and in 1881, 850,000. The art classes had gone on increasing from about 3,000 or 4,000 in 1857 to 23,000 in 1881. The provincial and metropolitan schools of art, including the National Art Training School at South Kensington, had, in 1857, 11,000 students; in 1862, 13,000; in 1871, 21,000; in 1877, 29,000; and in 1881, about 32,000. The total numbers taught and aided by the State, under the Science and Art Department, were as follow:—In 1857, 43,000; in 1862, 87,000; in 1871, 212,000; in 1877, 610,000; and in 1881, 917,000. So it would be seen we were doing something considerable in the way of teaching art, but they might be sure that at South Kensington they would not rest content until there was a new departure and a real improvement. He would give his reasons. In the first place he was surrounded by prizes. Prizes were all very well when students had to be bribed to come and be taught, but he was doubtful whether it was the best way of giving rewards. About 10,000*l.* a year was spent in this way. He thought the students would be aided more by giving them better examples, by giving free scholarships, and by assisting travelling studentships. It was the mark of merit that was wanted. The soldier died for a little iron cross, and the artist would be just as well content with the certificate which marked his progress as with a prize which had a certain money value. This was one of the subjects which was occupying his attention at the present moment. He believed that sufficient stimulus and emulation might be created by other means, and that the money might be employed better than as at present. The reason why Englishmen must not rest content was because they were threatened with a competition impossible to describe, and hardly, if possible, to exaggerate. He had spent some time in learning what was going on in France in the direction of encouraging instruction in art, and he was astounded at what he had seen. In every *arrondissement* he found placards offering gratuitous instruction in art to any person employed in this or that trade who would accept it, and he saw schools of art everywhere thronged by hundreds of students. Now this was done by the municipality; it was actually out of the rates and taxes that the Parisians paid the cost of the whole of the art education of the artisans of Paris. In the coming year the municipality of Paris would spend in this way 32,000*l.*, and the following year a much larger sum. From the budget of the city of Paris he learned that for 1,900,000 inhabitants education next year would cost more than double the amount expended for the four millions of people of London. These facts ought to be known, for their effects would have to be met. Last year a commission had been appointed to inquire into technical education throughout Europe, and when the commissioners came home they would pour into his ears the different facts in relation to the subject which they had collected, and he was astounded in regard to the tremendous energy and the lavish expenditure now going on in Continental countries, which had been stirred up mainly by what they saw England had been doing, and next by rivalry with each other. Professor Roscoe had told him of a visit made to an Art and Science School of Rouen, where amongst the scientific and art collections to aid in the work of teaching was found a Prussian spiked helmet, or *Pickelhaub*, used by the teacher to stimulate the students when they gave any signs of flagging by producing it, and crying, "*Travaillez, travaillez, messieurs;* France was humiliated and we also in this city of Rouen, because our enemies were better instructed than we were." That was the kind of impulse that was being given to instruction to every department of industry in France, because they felt they had been left behind somewhat in the race, and they were now looking to education in every department to place their country in its old position of renown. Thank God, we had nothing to fear from the invader, but what we had to fear was lest by lack of enterprise we should fall back in our industrial career. There was nothing which would do so much to keep our manufactures, and every product on which the impress of art could be put, as thorough art-teaching. If Englishmen wished to hold their own as art-workmen they must be prepared to compete with a race in France, in Belgium, in Munich, and in Dresden, who had the advantage of generations of art-traditions, who lived in an art-atmosphere, and who had always before them the best forms and examples of art-work. At Rouen artisans might be seen in large numbers working at their studies at night, with their coats off, for two hours on six nights in the week, diligently improving their minds and acquiring skill at the conclusion of a hard day's work. At Liège, in Belgium, with its population of 100,000, 6,000 young men were at work in the Art and Science Schools every night. Only recently in Paris 300 artisans engaged in a competition in modelling, and were at work from nine in the morning until five in the evening. In these circumstances, we ought to fear lest by our own negligence we should hold back, for nothing would so much keep our industries and manufactures to the front as art-teaching. There was another point to which he desired to refer before he sat down, and that was with regard to the feeling that was too apt to be entertained in this country that decorative and applied art was degrading to the artist. He trusted that before long we should entirely get rid of that false notion. John Ruskin, who knew something about this subject, wrote the following: "The only essential distinction between decorative and other art is the being fitted for a fixed place, and in that place related, either in subordination or in command, to the effect of other pieces of art. And all the greatest art which the world has produced is thus fitted for a place, and subordinated to a purpose. There is no existing highest-order art but is decorative. The best sculpture yet produced has been the decoration of a temple front, the best painting, the decoration of a room. Raffaelle's best-doing is merely the wall-colouring of a suite of apartments in the Vatican, and his cartoons were made for tapestries. Correggio's best-doing is the decoration of two small church cupolas at Parma. Michelangelo's, of a ceiling in the Pope's private chapel; Tintoret's, of a ceiling and side wall belonging to a charitable society at Venice; while Titian and Veronese threw

out their noblest thoughts, not even on the inside, but on the outside of the common brick and plaster walls of Venice. Get rid, then, at once of any idea of decorative art being a degraded or a separate kind of art. Its nature or essence is simply its being fitted for a definite place, and, in that place, forming part of a great and harmonious whole, in companionship with other art; and so far from this being a degradation to it, so far from decorative art being inferior to other art because it is fixed to a spot, on the whole, it may be considered as rather a piece of degradation that it should be portable." It must not be forgotten that the Italian artists of the Renaissance began their careers in the workshops, and that it was only by degrees that they developed into the skilful men they became. So much for the work which art-training produced; but they must not lose sight of the enormous advantage it was to the worker himself. Possessed with a knowledge of art, he felt his work cease to be a mere dull mechanical drudgery, and his labour in producing that of which his mind could appreciate the beauty became a pleasure instead of a toil. In conclusion, Mr. Mundella said they had a good deal to do in the future, and he was glad the London School Board was about to begin by engaging Mr. Bradford to put drawing in elementary schools on a better footing.

The right hon. gentleman, who was frequently applauded during the delivery of his address, then proceeded to distribute the prizes.

Mr. Thrupp then proposed a vote of thanks to the masters of the teaching staff.

Mr. Davison seconded the motion, which was carried.

Mr. Rawle briefly returned thanks.

Mr. Edis, in proposing a vote of thanks to the chairman, said that they all appreciated the address just delivered, which he hoped would be read throughout the country. He trusted the Vice-president of the Council would lend them some of those wonderful treasures that were stored at South Kensington, so that they might have before them to copy the highest types of art.

Mr. Donaldson having seconded the vote of thanks, it was also carried.

Mr. Mundella replied, and the proceedings then terminated.

HORTICULTURAL BUILDINGS.*

No paper on horticultural buildings would be complete without a reference to glass and glazing. As you are aware, for clear glazing, 21-oz. English sheet is generally used. Thinner than this is not advisable; neither is Belgian glass so desirable as English. Wavy speckled glass is apt to scorch plants. For a semi-obscure glass, Hartley's rolled plate is generally used.

Touching the mode of fixing the glass, I have unhappily come to the conclusion that for use in purely growing horticultural houses, no system hitherto invented is more advantageous than putty glazing. I say "unhappily," because putty glazing is by no means perfect: the putty is apt to peel off, crack, form crevices for the retention of moisture and insects, and cause the woodwork to rot. Then it is troublesome, to a certain extent, to renew putty-glazed glass when necessary, as well as to put it in in the first instance. There can be no doubt that horticulturists generally would welcome any advantageous method of superseding putty glazing; but there can equally be no doubt that for use in purely growing horticultural structures, putty glazing yet holds its own.

I will briefly run over some of the characteristic features of mechanical glazing:—In some systems the glass is held in its place by metallic clips; in others by compressible metallic bars; in others, between wedges of lead; in others, between strips of vulcanite or other elastic substance (the glass and such elastic substance being held in their position by wood or metallic capping and screws); in others, the glass drops into grooves prepared to receive it. Now in all of them the glass comes in contact with either a metallic or an elastic substance. In the former case, there must be a sufficient amount of "play," or the glass will certainly break; in the latter case, the elastic substance is found in practice,—chiefly in consequence of internal moisture, excessive variations in temperature, and atmospheric influences,—to give far more trouble to gardeners than putty properly made and applied. If, on the other hand, there be any "play" between the glass and whatever it touches, hot air has abundant opportunity for escape; such a house cannot be properly fumigated; crevices for the retention of water by capillary attraction abound; subsequent freezing of the water and breakage of the glass are liable; and the same crevices which hold the water will harbour insects,—all most serious disadvantages from the point of view of a horticulturist. Of course, for other than strictly growing glass houses, mechanical glazing may frequently be employed with benefit.

The most usual form of ventilator is a framed light, hinged at the top, and opening from the bottom outwards. Sliding sashes for roof ventilation have almost gone out of fashion, except for simple frames, low pits, and houses in which the roof requires, at certain times, to be practically stripped. For any other purposes sliding lights are cumbrous and unmechanical, and a roof in which they are fitted requires to be abnormally heavy, and affords great obstruction to the solar rays. Both top and bottom ventilators should extend along the whole length of a house, except, perhaps, in the case of the top ventilators of a span or three-quarter span, which may often be arranged alternately on each side of the ridge. Continuous ventilators, then, being necessary, consecutive lights may be made to open simultaneously, or each can be arranged to open separately. Unless, however, there are a great number of lights to manipulate, or unless they are not easily accessible, it is generally advisable to adopt the latter course; for, obviously, it may not be advisable to have exactly the same area of ventilation along the whole length of a house. At one part there may be plants which require a more constant and copious renewal of air than at another part. If lower vertical lights or ventilators are opened separately, then the ordinary notched hand "set-opens" may be used. If top-roof lights are opened separately, then a quadrant bar terminating in an eye may be fixed to each light, and actuated by a cord held by a counterbalance weight or a hook in an adjoining wall or mullion. When, however, to save time, the large number of ventilators to open, or from inaccessibility,—as, for instance, when a vine-border or a great width of staging in front of the ventilators necessitates their being opened simultaneously, the best gear to use is that consisting of a pair of double-jointed arms attached to each light and keyed to a bar held in blocks fixed to the mullions. The partial rotation of the bar and opening of the lights may be effected by a handle keyed on to the bar at any part moving in and pinned to a quadrant or half circle; or the motion can be conveyed by a connecting-rod to some distance. Similar apparatus may be used to actuate top-lights. These double-jointed arms are better than any other form, for they never offer an obstruction to pots, plants, foliage, &c.

Roofs have occasionally to be wired, in order to support foliage trained near them. In practice I find the best way to wire roofs is as follows:—Suppose we have a lean-to to deal with: take two flat bars turned edgewise, and suspend them at back and front by holdfasts, bolted at back through the wall, and at front into the mullions. Then at the necessary intervals stretch wires by means of *raidisseurs* to these two bars. Intermediate parallel bars, dependent upon the length of rafter, may serve to support these wires. The wires can thus be at short, long, or irregular intervals, or at any time, and as frequently as required, the distance apart of the wires may be altered. In this way they help to tie in the roof, enable painting and repairs to be more easily effected, and are more easily adapted to the wants of the gardener than fixing wires permanently and separately at right angles to the rafters. The wire I generally employ is galvanised iron about No. 12 B.W.G., each spaced say 10 in. apart, and 10 in. from the glass.

Soon after commencing this paper, I mentioned that growing-houses might be divided into three classes,—those adapted for plants, those for the cultivation of roof-fruit, and those having beds for bottom or root heat. In planning the staging in a house of the first class, the points to observe are facility of drainage from pots, economy of space, accessibility, proper distance from glass, depending upon the height of plants to be grown. A house about 11 ft. wide is a very favourite form with nurserymen. So far as the materials are concerned of which stages are composed, for ordinary plant-growing the usual lattice-wood stage, composed of 3 in. by 1 in. laths with ¾-inch spaces between them, is very suitable. When, however, the pots or plants require to be plunged in damp moss, sand, shingle, &c., then carefully drained concrete, slate, or zinc-lined wood stages may be necessary. The chief characteristics of a house of the second class are, framing wires along the roof, a prepared border about 3 ft. deep, and provision for thoroughly draining this border, and for preventing the roots of vines planted in it from penetrating to the subsoil. If the subsoil be of a retentive nature, then you must have concrete or other impervious base, on this, rubble; then turf, grass downwards; then the compost forming the border proper. If the subsoil be of a porous character, then the concrete base may be omitted. It is generally considered best for the border to run outside as well as inside; therefore the front wall should be built on arches, or composed of iron uprights filled in above the ground-line by slabs of slate. The total width of a border should, if possible, equal the width of the house. A forcing-pit may be taken as an example of the third class of growing-houses. The chief characteristic of this class is an arrangement of hot-water pipes for heating the soil of which the bed is composed, supplementary to and independent of the pipes for atmospheric heat. The pipes may be carried through the actual bed itself, or, what is better, they may be carried through an air-chamber under the bed. In this position the vapour troughs with which they may be fitted are more accessible, and the whole arrangement is certainly better than the previous arrangement, which necessitates water passing through the bed before it can be vaporised by the pipes. Although it is advisable to keep these three classes of houses distinct when treating of them, yet it is sometimes necessary to effect a compromise and grow grapes and plants, or plants and cucumbers, in the same house. For instance, a lean-to house may have a vine border in front and a tiered stage at back; or a span-house may have a forcing-bed on one side of the path and a stage on the other. Of course it is understood that when the functions of different classes of houses overlap one another, a high degree of cultivating efficiency is apt to be sacrificed.

I have hitherto been speaking of growing-houses. I should like, in conclusion, to say a few words upon conservatories or showing-houses. By these I do not mean winter gardens, in which palms and other large specimens of vegetation are permanently planted, but just ordinary conservatories, with numbers of which architects may expect to come in contact in the course of their professional work. At the outset several points must be kept in view. 1. A conservatory must be treated as one of the reception-rooms of the dwelling-house. 2. Without departing from its strictly horticultural character, we must endeavour to make it approximate architecturally, both inside and out, to the other portion of the dwelling-house. 3. This being so, we must regard the functions of growing and showing as quite separate. I am perfectly aware that many cases exist in which it is necessary that growing and showing be accomplished in the same house. In such cases a compromise must be effected, for if all the conditions of growing be complied with, the conditions of showing will suffer, and *vice versâ*. Let us endeavour to crystallise these abstract ideas into a few concrete facts. In a house in which plants are grown, it is generally essential, as you have seen, that they be not at a great distance; therefore low eaves, say, 5 ft., and interior high-tiered staging, may be not only desirable, but necessary. In a conservatory the eaves have frequently to be from 9 ft. to 12 ft. high, and interior staging dispensed with. We generally have a choice of aspect for a growing-house; the site of a conservatory is generally dependent upon proximity to a drawing-room or hall, where frequently the sun cannot reach it. A growing-house may have scantling as light and unobstructive to the solar rays as possible; a conservatory may require to have heavier scantling, and, to a certain extent, obstructive ornamentation. In a growing plant-house, path area is generally economised as much as possible, in order to obtain the maximum growing area; in a conservatory a different disposition of paths is necessary. Summing up the chief points to be

* A paper by Mr. F. A. Fawkes, read before the Architectural Association on the 8th inst. See p. 774, *ante*.

observed in designing a conservatory, I would say,—Construct it in harmony with the adjoining or surrounding architecture. Give as much light as you can. Ornament the construction: never construct the ornament. Interest and pleasure should be excited by the broad lines of a conservatory rather than by meretricious ornament and fussy detail. When will the world, especially the architectural world, recognise that art and simplicity do not form an irreconcilable combination? Touching the interior, I would say,—Throw away stages, hide the pots, and let us see natural beds and banks of foliage and flowers massed with artistic irregularity. Let there be an ample paved space,—not a mere path,—but a space so that a table and a chair or two may be placed in it. Let the conservatory be regarded more as a lounge than a mere place to walk round in single file. If the size and nature of the conservatory permit, then rockwork, a fountain, or sculpture may find a place in it. Baskets of hanging foliage look well. Bare walls, as well as other parts of a conservatory, may have creepers upon them. A grass mat or two may be thrown down here and there, and a parrot advantageously introduced. Sometimes an awkward space in the brickwork may be easily turned into an aviary. In fact, while not sacrificing the strictly horticultural *raison d'être* of the structure, a judicious combination of art with nature may intensify the enjoyment derived from a conservatory, and the beauties of the plants and flowers may be absolutely enhanced by the introduction of such artistic accessories as I have mentioned.

NEW SUBSTITUTE FOR GYPSUM.

A substance has been introduced in Germany for industrial uses which is alike applicable to castings of figures, ornaments, &c., instead of gypsum, and also in the form of paint to the impregnation of tissues and wood. Its resisting properties are stated to be equally effective against the influences of weather and of fire. It is described in a German technical journal as being capable of taking a high polish. It is composed principally of fluor-spar or chryolith, in combination with fire-proof white sand, zinc-white, hydrate of lime, sulphate of baryum (natural and artificial), silicate of magnesia, powdered quartz, &c., together with moderately-concentrated soluble silicate of potash. This mixture is carefully stirred together, and is cast in gelatine or other moulds.

STEVENS AND ST. PAUL'S.

Sir,—In a recent issue of your journal you give a report of a paper read by Mr. Popplewell Pullan on the Decoration of St. Paul's Cathedral.

Mr. Pullan expresses, at the outset, the hope "that his paper would be of interest to some members of the Institute, would excite few of them, irritate none, and be instructive to all." That the paper was instructive to all, few who have read it can, I think, question; for it revealed, apparently, a good deal that was new, —not to say novel,—to the general body of the profession. Judging, however, from the comments made by some of the speakers in the discussion which followed, it can hardly be supposed that his hope as to an absence of excitement and irritation was fulfilled. One cannot but sympathise with the author in that his "suggestion towards the solution of the problem" did not meet with that approval which, no doubt, he would have desired; but my sympathy does not go so far as to lead me to concur in the wholesale denunciation which he heaps upon the memory of "Stevens, a sculptor lately deceased." It might have occurred to the lecturer, one would have thought, that most of his auditors knew what Stevens was; and, had they not heard of his decease, might fairly have inferred that he was hardly in a position to come forward and reciprocate the kindly and generous sentiments expressed towards him by Mr. Pullan.

I do not desire to occupy your valuable space with any lengthened discussion as to the rival schemes; but, with your permission, to say a few words with regard to one of the subjects touched upon on the occasion alluded to. I refer to the Wellington Monument.

It has always appeared to me that the Wellington Monument, though in itself a work of great merit and beauty, cannot by any chance be a "joy" to any one, and certainly not "for ever," unless removed to some place where it can be properly seen. What is the impression on first catching sight (and ever after) of the monument? It is that its nature and proportions are totally unfitted for the position it occupies. The wonder is how it got there. The work is full,—perhaps a little too full,—of fine detail (which, if I may so express it, appears rather inclined to run to seed); but when walking round the monument the eye is satisfied. Supposing, though for a moment, the details had been inferior, the general outline remaining one of marked excellence, would not the structure have been so denounced as to have forced the authorities to have removed it long since? I venture to hope so; for then nothing in the shape of beauty could have been seen, a good view of the whole structure being unobtainable. I believe I am correct in saying that Stevens designed the monument to be placed between two of the nave piers. Nothing of this is said by Mr. Pullan; on the contrary, he points to the want of the sense of fitness shown in designing such a monument for such a site as evidence of Stevens's incapacity to conceive a suitable scheme for the decoration of the dome. But who, it may be asked, was the adviser of the Dean and Chapter as to placing the monument in its present position? Perhaps,—and I trust it was so,—the Surveyor to the cathedral entered a protest. Could he, however, have represented to the Dean and Chapter the grossness of the blunder they were making?

We talk, sir, very much in these æsthetic days about the value of educational influences, especially in matters of art. Is not this one of the most charming examples? What can be the impressions in the minds of the thousands of visitors to the cathedral, as you see them, guide-book in hand, craning their necks in the futile endeavour to catch a glimpse of the fine sculpture which adorns the monument?

Those who wish to know how great an artist Stevens really was would do well to pay a visit to the Architectural Court in the South Kensington Museum. That the original conception of the artist was a noble one, evincing a splendid mastery over the style, we have only to study there the original model. There, also, are to be seen the models of "Truth pulling out the Tongue of Falsehood," and "Valour spurning Cowardice."

In reply to a statement that the nodding plumes of the duke would have swept the ceiling, Mr. Stannus stated that it was not intended to have any plumes in the hat; they are not likely, therefore, to have swept the ceiling. He also says that it is 18 ft. from the platform (upon which the equestrian statue of the duke was to have stood, and at present the summit of the monument) and the ceiling. Are we to regard this as a defence of the placing of the monument? But the work is not complete; nor does it look so; and should there be surprise, the crowning feature of the structure being absent?

It would be interesting to learn, had the artist's design been carried out in its entirety, what space there would have been from the ceiling of the Consistory Court to the topmost point of the statue.

We have here a costly monument to the memory of one of our greatest men, a monument of considerable size and richness (and therefore, no doubt, to the ordinary mind, the more worthy of study), situated in a conspicuous position, near the principal entrance of our metropolitan cathedral,—a monument of unusual merit, and yet the whole affair a bungle. Where is our "lucidity"? Can we hope to advance as we should if we permit such errors to pass almost unnoticed? Errors have been so common with us in matters of this kind that we have come to regard it as a surprise to have the right thing done. Is not this another notable instance of the need of our having some tribunal to which matters of this kind might be submitted, and whose language should be law?

No doubt, if the monument be permitted to remain in its present position, it will soon be regarded as a fitting precedent for the exercise of a similar piece of good judgment elsewhere. Sir, I have seen such abominations erected that I believe the very winds of heaven would have blown them down in disgust had they not been shielded by the all-protecting mantle of precedent. Are we here to record another decision against the "reason of mankind," and call it a *precedent*?

Charles E. Dyer.

OBITUARY.

Mr. J. M. Blashfield.—We hear with regret of the death of one of our oldest subscribers, Mr. John Marriott Blashfield, of No. 17, Great College-street, Westminster, and late of Stamford, Lincolnshire, which took place on Friday morning, the 15th inst., after a short illness, of bronchitis, followed by paralysis. The various architectural works in terra-cotta dotted about London and elsewhere, executed by him, are familiar to many, and testify to his great zeal and successful industry in the advancement of art-industry. The care and truth displayed by him in all his manufactures have admittedly been one of the causes of the present great development of terra cotta as a building material.

The Commendatore Virginio Vespignani.—At the meeting of the Royal Institute of British Architects, on Monday evening last, the Secretary announced the decease, on the 3rd inst., of the Conte Commendatore Virginio Vespignani, Architect to St. Peter's, and Honorary and Corresponding Member, of the Vatican, Rome.

SHORTCOMINGS AT NETLEY HOSPITAL.

Sir,—I had occasion to visit Netley Hospital recently, and your remarks, in your issue of the 9th inst., on the lamentable shortcomings as regards lifts for the service of the hospital, were brought home to me very forcibly. The whole place was alive with men laboriously carrying large boxes of coals up the staircases and along the corridors. The boxes were made of iron, and were furnished with two handles, and were thus able to be carried by two men, one holding each handle. Filled with coals, as they were, they seemed just as much as some of the men could manage to carry up the steep staircases. Coals were unavoidably dropped about, and, of course, a good deal of coal-dust was mixed with the air. I was told they were carrying the week's supply for all the wards of the hospital and for all the offices of the establishment, as well as for the quarters in which the sick officers and some of the medical officers resided. This coal-carrying is a regular weekly performance, and when I mention that the lines of wards open upon corridors, each over a quarter of a mile long, and that there are three tiers of them, one above another, while the central part of the building is four stories in height, you may readily conceive what the work is, and what the effect is on the sick attendants who have to do it, and on the place itself. However clean the staircases and passages may be at its commencement, they are left in a condition that, as a matter of necessity, requires scrubbing and cleaning afterwards. To any one who knows what the uses of mechanical lifts are in our great hotels and other lofty public buildings, it is quite beyond comprehension that such a state of things should be permitted to last a day in our great military hospital, with its Royal foundation and national associations. It is stated that the Queen at her recent visit remarked on the chilliness of the corridors, and no one who passes along them on a cold windy day can be at all surprised at such an observation. How some of the patients can brave with impunity the cold currents of air that sweep along them is a mystery.

A Casual Observer.

THE STONE QUESTION.

Sir,—Mr. Cross, in his letter of December 2, tells us that it is "a marvellous thing that the stone used in London buildings perishes so quickly"; but those who have considered this subject at all know that it is not in the least degree surprising. It is simply a matter of cause and effect. It is not to be wondered at that the cementing ingredients of stone,—hard or soft,—are destroyed when the chemical constituents of the abnormal atmosphere of London are considered. Carbonate of lime cannot long exist in the perpetual presence of hydrochloric acid, carburetted hydrogen, sulphurous gas, ammonia, and other corrosive agents, which are greedily absorbed by all free-stones. And Mr. Cross's panacea of careful "selection" at the quarries would only have the effect of retarding decay, even admitting it to be practically possible to carry it out. But I may ask, what owner of any well-known quarry would permit Mr. Cross or any one else to pick out the best stone on the spot for one particular building? Then, if architects, proprietors, and

committees are obliged, in nine cases out of ten, to study rigid economy, it is not likely they will bear the cost of the salary of a competent man to hang about the quarry decided upon,—say, for a year or two,—just "to select" their portion of stone only. The owner would necessarily have to attend to the wants of many other customers, and therefore the above competent man would spend many idle days doing nothing for his employers. With the poisoned air of London it is only a question of time how long this or that stone will resist the powerful acids,—a few only of which I have named above. Owing to various causes, some stones will last longer than others, and, in my own experience, it is not always the quality of hardness that increases durability. One of the softest stones I ever used has proved, after thirty years' exposure to country air, absolutely durable. But we are talking of London,—abnormal London,—and there is only one stone, so far as my own experience goes, that will not decay, viz., Craigleith; but as it contains 79 per cent. of silica it is so expensive to work as practically to be out of the market. Indeed, it is rather to be classed with the granites.

On the whole, then, I venture to think that Mr. Cross's proposal of "better selection" of stone at the quarry would not prove a remedy for the decay of stone in London, and is impracticable. H. T.

THE DECORATION OF ST. PAUL'S.

SIR,—Permit me to point out to Mr. R. P. Pullan that as the published reports of the meeting at the Institute contain the sentence "Having repudiated architects," exactly as quoted by Mr. Stannus, it may be possible that the latter gentleman was *not* "guilty of something more than garbling a quotation."

Referring to the rest of Mr. Pullan's letter, I would wish to express sincere regret that he should have been so sensitive to adverse criticism as to imagine that a person so well known for his geniality and fairness in discussion as Mr. Stannus is, could possibly desire to convey an unjust imputation against an opponent.

J. OSBORNE SMITH.

VARIORUM.

THE "British Almanack and Companion," 1883, holds its own, and seems to be the library almanac *par excellence*. The "Companion" has, as usual, a number of well-written essays on subjects of the day, including a section on architecture and public improvements. The writer, we are glad to see, objects entirely to the scheme determined on at Hyde Park Corner, and the removal of the arch.——The *American Bookseller*, besides giving full information as to works published and promised, includes some incisive and pregnant notes on passing events of cognate interest.

Miscellanea.

The Regent's Canal and City Railway.—The Regent's Canal, City, and Docks Railway Company, who obtained their Act last session, have commenced the purchase of lands along the line of route, with the view of immediately entering upon the construction of the line, and have just completed an important purchase in the neighbourhood of Aldersgate-street. The project includes the construction of a station in that locality, not far from the Aldersgate-street station of the Metropolitan Company, and for this and the general purposes of their undertaking, the company have just purchased a large area of land on the boundary of the City in Golden-lane. The land, which has for some time past been vacant, and which contains 45,336 ft., has been bought from the local authorities for the sum of 80,592*l.*, being at the rate of nearly 2*l.* per foot. It is stated that the purchase-money is intended to be applied to the erection of artisans' dwellings in Petticoat-square.

The Bethnal-green Museum.—The Marquis of Bute has followed the good example of Sir Richard Wallace, Mr. Franks, and other possessors of celebrated collections, and has lent the greater part of his pictures to the museum at Bethnal-green. They have been arranged in the South Gallery, which they completely fill, and the collection was opened to the public on Thursday morning.

Royal Academy.—The private view of the works of Old Masters and deceased British Artists will take place on Saturday, the 30th of December. The exhibition will be open to the public on the following Monday.

Manchester School of Art.—After twenty-one years' sojourn as a public officer in Manchester, Mr. W. J. Muckley has resigned his post as director and principal of the School of Art in this city. Up to the last eighteen months the Manchester School has never had a building of its own, and hardly any school of art in the kingdom has had to work under difficulties so great as it has done, notwithstanding its success. At the present moment Manchester may be justly proud of having the finest art school in the kingdom. The prize fund of 650*l.*, which is connected with the school in perpetuity, was solely obtained by the retiring director. Mr. Muckley now wishes to pay more continuous and immediate attention to his own work as a painter in the metropolis,—to which place we understand he is about to remove,—as well as to other matters connected with industrial art, and in which he has been very successful of late years.

Masters and Men.—The fifth annual dinner to the *employés* of Mr. J. Hill, 37, Upper Thames-street, was given on Thursday at the Holborn Restaurant, the chair being occupied by Mr. Hill, and the vice-chair by Mr. Ritchie (of Messrs. Steven Bros. & Co.). The usual toasts were given, and in reply to that of "The Chairman," Mr. Hill gave an interesting sketch of a three months' tour which he and his wife made this year in the East; passing in review his impressions of Italy, Greece, Palestine, and Egypt, his remarks on Egypt being all the more interesting from the fact that he had been in Alexandria and Cairo shortly before the war broke out. In the course of the evening Mr. Hill's manager, Mr. King, was presented by his fellow *employés* with a silver biscuit-box, as a mark of their esteem and in commemoration of his recent return from a tour of inspection of the leading lock manufactories of the United States.

New Shoreham, Sussex.—This once important port is now showing signs of returning life, and is likely to make its title of being the "Liverpool of the South" a reality, applications from several eminent manufacturing firms in the Northern and Midland Counties, London, and Germany being on foot for information as to land or buildings available with easy railway and port access. And as rents are at present low, and the prospects of another railway to Brighton, in competition with the London, Brighton, and South Coast Railway, are in active promotion, the busy hum of commerce is likely soon to be heard there. The Local Board, anxious to see brighter things, have already approved plans prepared by Mr. Arthur Loader, architect, of Brighton and Shoreham, for extensive buildings for the manufacture of soap, which, if carried out at a cost of 6,000*l.*, will employ a considerable number of workmen.

The New City of London School.—Reverting to the particulars given by us last week of this building, we find that the whole of the stone carving to the interior, and the greater portion of the foliated carving to the exterior, were executed by Mr. J. W. Seale, of the "Apollo" Works, Walworth, and not by Mr. G. W. Seale, of Brixton, as formerly stated. We may also mention that the parquet floors and the marble mosaic pavements in the entrance-hall and elsewhere were laid by Mr. Ebner, of Clerkenwell-road; and that "Lincrusta-Walton," supplied by Messrs. Fredk. Walton & Co., Limited, was used in the head-master's room, the secretary's room, and also in the library.

Social.—Mr. W. W. Gwyther, F.R.I.B.A., was on Monday evening last entertained at dinner at the Café Royal, Regent-street, by his assistants and pupils, past and present. Mr. J. W. Stevens occupied the chair, and proposed the toast of the evening; and Mr. C. J. Jones, as senior assistant, presented to Mr. Gwyther a handsomely-bound morocco album, mounted in silver gilt, with arms, monogram, &c., thereon.

Damp Walls.—Those who are inflicted with the nuisance of damp walls might find it worth while to make use of the "Crown Damp-Resisting Fluids," manufactured by T. F. Chambers & Co., of Hull, and which are getting into use for the suppression of damp. The Midland and other railway companies, we are told, are using them largely.

Monumental.—On Saturday, the 23rd inst., at three p.m., Messrs. H. Young & Co., Pimlico, purpose casting in bronze the statue of the late Earl of Beaconsfield, K.G. (by Mario Raggi, sculptor).

Pumping Machinery.—We notice that at the Cornwall Mining Institute Exhibition, held last week at Camborne, the well-known firm of John Warner & Sons, of the Crescent Foundry, Cripplegate, were awarded a silver medal for their exhibit of mine pumping machinery and pumps, and mining tools.

TENDERS

For the erection of infants' school, for the Carshalton School Board. Mr. J. D. Hayton, architect, Whitehall. Quantities by Mr. C. H. Gough:—

Hersee	£1,876	0	0 !
Backey & Smith	1,620	0	0
Pritchard	1,500	0	0
Morley	1,417	0	0
Burridge	1,367	0	0
Clark	1,361	0	0
Rowe	1,347	0	0
Beale	1,320	0	0
Pickersgill Bros.	1,315	0	0
Smith & Bulteel	1,298	0	0
Abraham	1,296	0	0
Howe & White	1,296	0	0
Jarvis	1,293	0	0
J. & C. Bowyer	1,290	0	0
Burnam	1,276	10	0
Bracey	1,275	0	0
Arney	1,275	0	0
Lorden & Son	1,266	0	0
Winter	1,252	0	0
Willcock	1,239	0	0
Le Gassick & Co.	1,215	0	0
J. W. Hobbs	1,199	0	0
Sharpe	1,198	0	0
Holloway	1,193	0	0
Wagner	1,186	0	0
Buchan	1,170	0	0
Coles	1,157	0	0
Deacon	1,145	0	0
Morris	1,143	0	0
Docking	1,139	0	0
Knight	1,132	15	0
Brown Bros.	1,127	0	0
Scharien & Co.	1,120	0	0
Wontner Smith	1,118	0	0
Higgs	1,098	0	0
Stewart	1,098	0	0
Ward	1,098	0	0
Humphris	1,085	0	0
Cawson & Sons	1,073	0	0
Dawson & Sons	1,055	0	0
Priestley & Gurney	1,025	0	0
Potter	1,025	0	0
Evans	1,017	0	0
Keate	996	0	0
Pearson	986	0	0
Ackerman	935	9	11 !

For the erection of new greenhouse and vinery, at Castleford, Yorkshire. Messrs. Wm. Lewis & Son, architects, 46½, Stonegate, York. Quantities by the architects:—

T. B. Wilson, Castleford	£160	0	0

For the erection and completion of cemetery chapels, entrance-lodge, boundary-walls, and laying-out the grounds, at Cawood, near Selby, Yorkshire, for the Selby Union Rural Sanitary Authority. Messrs. Wm. Lewis & Son, architects. Quantities by the architects:—

T. Hinsley, Selby	£2,000	0	0

For the erection of cottages and stables, at Castleford, Yorkshire. Messrs. Wm. Lewis & Son, architects. Quantities by the architects:—

J. Spears, Castleford (Lowest estimate of twenty.)	£1,600	0	0

For the erection of new drying-kilns, at Castleford, Yorkshire. Messrs. Wm. Lewis & Son, architects. Quantities by the architects:—

J. Spears, Castleford (Lowest estimate of fifteen.)	£600	0	0

For proposed new shoe manufactory, at Kettering, Northamptonshire, for Messrs. Farey. Mr. Thomas Whitney, architect. Quantities supplied:—

Roberts & Sons, Stratford-on-Avon	£1,800	0	0
Bennett, Rugby	1,775	0	0
Wingrove, Northampton	1,621	0	0
Law, Northampton	1,556	0	0
Waring, Northampton	1,549	0	0
Daniel Ireson, Northampton	1,506	0	0
Ginns, Kettering	1,494	0	0
H. J. Henson, Kettering	1,483	0	0
Sharman, Kettering	1,460	0	0
G. Henson, Kettering	1,394	0	0
Coltman, Kettering	1,359	0	0
Barlow, Rothwell	1,337	0	0
Manby, Kettering	1,335	0	0
Briggs, Kettering	1,325	0	0
C. & F. Henson, Kettering	1,321	0	0
Margetts, Kettering	1,296	0	0
Payne & Son, Kettering	1,248	0	0

For the erection of four houses at Woodford, Northamptonshire, for Mr. Zachariah Gunn. Mr. Thomas Whitney, architect. Quantities supplied:—

Ireson	£676	0	0
Johnson & March	670	0	0
Coates & Son	640	0	0
Lovell & Adams	633	0	0
Sharman	620	0	0
Margetts	573	0	0
Payne & Son	565	0	0
Halford	564	0	0
Waring	520	0	0
Henson	520	0	0
Tarrant	480	0	0

For proposed additions to the Montpellier Tavern, Montpellier-street, Walworth, for Mr. Tanner. Messrs. Muggeridge & Powell, architects:—

Fisher	£439	0	0
Castle	425	0	0
Taylor	420	0	0
Burman	397	0	0
Tyreman	376	0	0
B. Cook	373	0	0

For proposed new church for the Committee of the Reformed Episcopal Church, Hemel Hempstead. Messrs. Coe & Robinson, architects :—

Young & Co.	£3,133	0	0
Ireson	3,045	0	0
Howe	2,640	0	0
Cook Bros.	2,616	0	0
Monk	2,287	0	0
Honour & Sons	2,279	0	0
Sears	2,089	0	0

For new farm buildings, at the Sewerage Farm, for the Corporation of Northampton :—

Waring, Northampton	£389	0	0
Ireson, Northampton	350	0	0
Dunkley, Pike-lane	340	0	0
Clayson & Sharman, Brayfield	317	0	0
Wingrove, Northampton	296	0	0
G. White, Northampton	239	0	0

For alteration at Police-station, Fish-street, Northampton, for the Corporation of Northampton :—

Ireson, Northampton	£148	15	0
G. White, Northampton	123	10	0

For alterations and additions to No. 147, Gloucester-road, for Mr. E. Wriglesworth. Mr. George Edwards, architect. Quantities by Mr. H. Lovegrove :—

Aldin & Plater	£1,799	0	0
Martin Wells & Co.	1,780	0	0
Craske	1,698	0	0
Dyer	1,679	0	0
Toten & Sons	1,665	0	0
King & Son	1,655	0	0
Scrivener & Co.	1,650	0	0
Pain	1,646	0	0
Stimpson & Co.	1,520	0	0
Lucas & Son	1,445	0	0
Shareen & Williams	1,444	0	0
Green	1,430	0	0

For new roads, sewers, brick culvert, and surface water-drains, &c., for the British Land Company, Limited, on their estate at Ealing Park, Middlesex. Mr. Henry B. Michell, surveyor :—

McKenzie & Williams, London	£7,123	0	0
Bloomfield, Tottenham	7,101	0	0
Crockett, St. Pancras	7,032	0	0
Nowell & Robson, Kensington	6,975	0	0
J. Jackson, Leyton	6,943	0	0
Pizzey, Hornsey	6,920	0	0
Dunmore, Hornsey	6,205	0	0
Harris, Camberwell	6,115	0	0
Keeble, Regent's Park	5,804	0	0
Wilson, Walthamstow	5,498	0	0
Peill & Sons, Bromley, Kent*	5,325	0	0

* Accepted.

For three houses in Cliff-road, Dovercourt. Messrs. Whitmore & Reeves, architects, Chelmsford and London. Quantities supplied :—

H. Gozzett, Woodham Walter	£2,450	0	0
J. Grimes, Colchester	2,380	0	0
J. W. C. Butcher, Harwich	2,370	0	0
S. J. Newton, Harwich	2,340	0	0
R. Girling, Ipswich	2,263	0	0
F. Dupont, Colchester	2,219	0	0
R. S. Smith, Ipswich	2,198	0	0
G. Dobson, Colchester	2,175	0	0
W. Wood, Chelmsford	2,120	0	0
H. Everett & Son, Colchester	2,100	0	0
N. Saunders & Son, Dedham	1,934	0	0
H. Wright, London	1,542	10	0

For reinstating, after fire, cigar and tobacco factory, Half-moon-passage, Whitechapel, for Messrs. B. Morris & Son. Mr. J. Hudson, architect :—

Read & Son	£2,373	0	0 !
Little	2,239	0	0
Earle & Son	1,482	0	0
Gould & Brand	1,459	0	0
Cox	1,455	0	0
Roberts (accepted)	1,258	0	0
Barnett	1,170	0	0 !

For rebuilding No. 207, Pentonville-road, for Mr. H. Houfe. Mr. D. North, architect :—

Batchelor	£1,156	0	0
Gould & Brand	1,097	0	0
Burman	1,077	0	0
Langmead & Way	1,025	0	0
Anley	1,014	0	0
Hayworth	1,011	0	0

For internal plumbing and hot-water work to new house, Caterham, for Mr. D. Birt. Mr. J. Sulman, architect :—
J. Knight, Westminster (accepted).

For alterations and additions to the Wallace Head, Blandford-street. Mr. Applin, architect :—

Langmead & Way	£780	0	0
Godden	709	0	0
B. T. Wood	705	0	0
W. Shurmur	669	0	0
J. Harper	663	0	0

For alterations and office-fittings, at No. 20, King-street, E.C., for the Cheque Bank, Limited. Mr. Chas. Poland, architect :—
W. Shurmur (accepted).

For alterations, &c., at the Russell Arms, Bedford-street, Seymour-street. Mr. J. R. Furniss, architect :—

Jackson & Todd	£274	0	0
King	246	10	0
Toms	239	0	0
Anley	215	10	0
Lamble (accepted)	209	0	0

Accepted for St. Michael's Church, Ford, Cornhill-on-Tweed, for Rev. H. M. Neville, M.A. Mr. Walter B. Thomas, architect, Ford. Quantities by the architect :—
Henry Aynsley (*Concrete*).
Locke & Brown (*Masonry*).
R. & J. Steel (*Carpenter and Joiners' Work*).

For new shop-front and shop-fittings, at No. 180, High-street, Camden-town, for Mr. Slade :—
Gould & Brand (accepted).

For shop-fittings at No. 3, Prospect-place, Edgware-road, for Messrs. E. & C. Mathews :—
Gould & Brand (accepted).

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